

COMMERCIAL FISHERIES REVIEW



Vol. 12, No. 8

AUGUST 1950

FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington, D.C.



COMMERCIAL FISHERIES REVIEW



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES
PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

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Applications for COMMERCIAL FISHERIES REVIEW, which is mailed free to members of the fishery industries and allied interests, should be addressed to the Director, Fish and Wildlife Service, United States Department of the Interior, Washington, 25, D.C.

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The printing of this publication has been approved by the Director of the Bureau of the Budget, December 15, 1949

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August 1950

Washington 25, D.C.

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RELEASING SMALL FISH AND SHRIMP FROM TRAWL NETS

By Eugene W. Roelofs*

INTRODUCTION

The rapid development of the shrimp fishery in Pamlico Sound, North Carolina, during recent years, accompanied by a general decline in finfish catches (other than menhaden), has resulted in a controversy regarding the relationship between the two industries. Many fishermen, and others, have been quite vociferous in their charges against the shrimp industry. Newspapers have carried feature stories describing the destruction of small fish by the shrimp trawls. There have been, however, very few facts which could be used as a basis for sound appraisal of the destruction.

During the summer of 1949, the University of North Carolina's Institute of Fisheries Research made a study of the release of small fish and shrimp from a highly-publicized and newly-developed webbing designed to retain shrimp and to release more fish than the type of webbing currently used in the industry. Two mesh sizes of standard webbing were used for comparison.

While gathering information on the escapement of fish from the three nets, data were also obtained regarding the kinds and amounts of finfish taken and the distribution and growth of small fish within Pamlico Sound during the summer. The primary objective of the study, however, was to study the release of small fish and shrimp from the various types of webbing and to determine whether changes in net mesh construction and/or size resulted in sufficient savings of small fish to justify a modification of present regulations relating to shrimp trawls.

GEAR

An 18-foot trawl, similar to the conventional shrimp trawl, was used during the earlier part of the study. It was found, however, that the catches with this net were small, and it was felt that larger catches would result if conditions for escape from the cod end more closely approximated those found in the commercial nets. The 18-foot net, therefore, was replaced by a 50-foot net. Of a total of 39 experimental tows, 15 were made with the small and 24 with the large net.

Three interchangeable cod ends were used in this study: (1) standard 32-thread twine, 2-inch stretched mesh (Figure 1-A); (2) same as above, 2 $\frac{1}{2}$ -inch mesh (Figure 1-B); (3) a special cod end¹ made of 2 $\frac{1}{2}$ -inch webbing, 18-thread twine (Figure 1-C), but with three softer and longer twines tied in with the regular twine. The longer, soft twines were designed by the inventor to entangle the shrimp and prevent their escape, while the larger mesh size would allow passage of small fish.

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¹ THE SPECIAL COD END USED IN THE EXPERIMENTS REPORTED IN THIS ARTICLE WAS THE SO-CALLED GUTHRIE COD END, INVENTED BY LOUIS GUTHRIE, MOREHEAD CITY, N. C. (EDITORS).

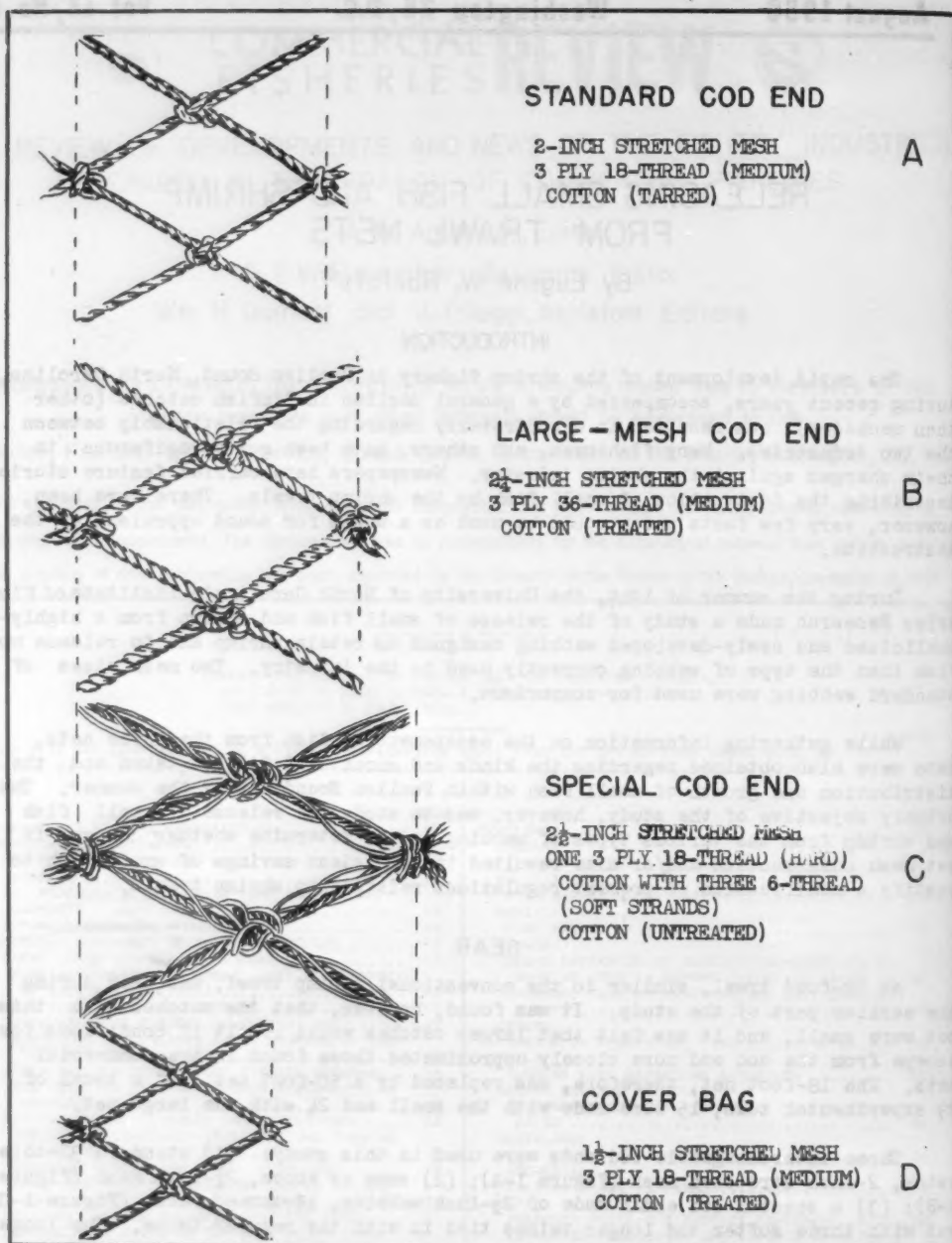


FIGURE 1 - MESH SIZES OF THREE COD ENDS AND COVER BAG USED IN THIS STUDY.

A cover bag, made of $1\frac{1}{2}$ -inch webbing and 21-thread twine, (Figure 1-D) was sewed onto the belly of the net, four meshes ahead of the cod end. The cover bag was longer than the cod end and completely surrounded it so that fish or shrimp passing through the meshes of the cod end would be caught in the cover bag (Figure 2).

METHODS

The net was towed from the Institute's launch, the Robert E. Coker (Figure 3). Towing speed was about 3 knots; length of tows varied from one-half hour to slightly over one hour.

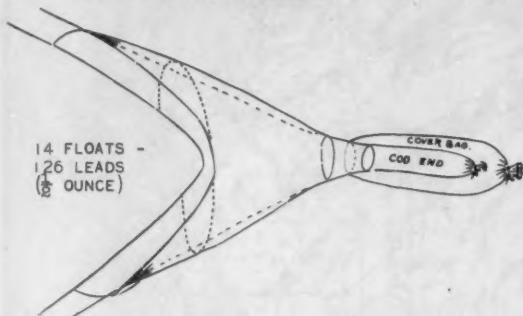


FIGURE 2 - THE COVER BAG SEWED ONTO THE BELLY OF THE NET, FOUR MESHES AHEAD OF THE COD END.

All of the tows were made in Pamlico Sound and the mouths of Pamlico and Neuse Rivers. No attempt was made to work in areas where shrimp were concentrated inasmuch as the study was primarily concerned with escapement of small fish. Shrimp were taken in all tows but in a smaller ratio to finfish than would have been taken by following the "schools" of shrimp throughout the Pamlico Sound area as practiced by commercial shrimpers.

When the net was lifted, the contents of the cover bag and the cod end were discharged into separate compartments on deck. All fish and shrimp were measured in 0.5 centimeter intervals.

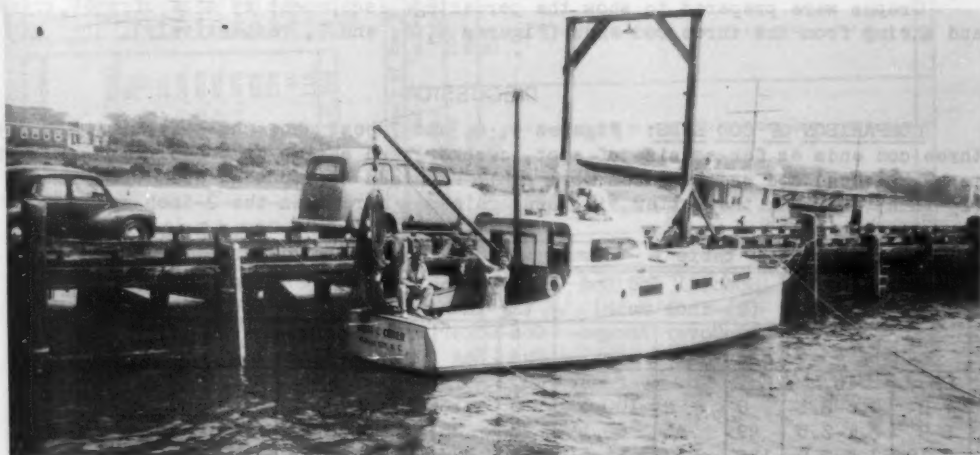


FIGURE 3 - MOTOR CRUISER ROBERT E. COKER OF THE UNIVERSITY OF NORTH CAROLINA'S INSTITUTE OF FISHERIES RESEARCH.

RESULTS

In the 39 experimental tows, 1,884 shrimp and 13,083 fish were taken. The number of spot, croaker, and shrimp taken in each cod end and cover bag is presented in Tables 1, 2, and 3, respectively. Included in these tables is the per-

centage of escapement from each cod end of one-centimeter size groups. Sea trout taken in the various cod ends and cover bags are given in Table 4. The number of sea trout was relatively small and percentage of escapement by size was not calculated. Total numbers and kinds of fish caught are shown in Table 5.



FIGURE 4 - WHEN THE NET WAS LIFTED, THE CONTENTS OF THE COVER BAG (UPPER CHECKER) AND THE COD END (LOWER CHECKER) WERE DISCHARGED INTO SEPARATE COMPARTMENTS ON DECK. SMALL FISH IN UPPER COMPARTMENT WERE RELEASED.

Graphs were prepared to show the percentage escapement by size of spot, croaker, and shrimp from the three cod ends (Figures 5, 6, and 7, respectively).

DISCUSSION

COMPARISON OF COD ENDS: Figures 5, 6, and 7 best show the selectivity of the three cod ends as far as size of spot, croaker, and shrimp is concerned. The large-mesh ($2\frac{1}{2}$ -inch) cod end releases more small fish and shrimp than does the special ($2\frac{1}{2}$ -inch) cod end; the latter, in turn, releases more than the 2-inch mesh. The

Table 1 - Summary of Spot Escapement by Size

Length		Special Cod End ($2\frac{1}{2}$ -inch mesh)			Large-Mesh Cod End ($2\frac{1}{2}$ -inch mesh)			2-inch Mesh Cod End			Total
		Cod End	Cover Bag	Escape- ment	Cod End	Cover Bag	Escape- ment	Cod End	Cover Bag	Escape- ment	
Cm.	In.	No.	No.	Percent	No.	No.	Percent	No.	No.	Percent	No.
7-8	2.8-3.1	0	2	100.0	0	16	100.0	2	0	0.0	20
8-9	3.1-3.5	29	45	60.1	5	36	87.8	37	9	19.6	161
9-10	3.5-3.9	126	217	62.5	10	79	88.7	129	37	22.3	598
10-11	3.9-4.3	192	277	59.1	42	96	69.6	122	21	14.7	750
11-12	4.3-4.7	177	103	36.8	86	81	45.8	112	5	4.3	564
12-13	4.7-5.1	89	30	25.2	115	33	22.3	60	1	1.6	328
13-14	5.1-5.5	39	9	18.8	84	5	5.6	35	0	0.0	172
14-15	5.5-5.9	12	1	7.7	58	0	0.0	15	0	0.0	86
15-16	5.9-6.3	4	0	0.0	36	0	0.0	7	0	0.0	47
16 +	6.3 +	4	0	0.0	25	0	0.0	7	0	0.0	36
Total	.....	672	684	50.5	461	346	42.8	526	73	12.2	2,762

Table 3 - Summary of Shrimp Escapement by Size

Length	Special Cod End (2½-inch mesh)				Large-Mesh Cod End (2½-inch mesh)				2-inch Mesh Cod End			
	End		Escapement		End		Escapement		End		Escapement	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
5-6	2.0-2.4	1	2	66.7	0	3	100.0	1	8	88.9	15	15
6-7	2.4-2.8	5	6	54.5	4	13	76.5	4	2	33.3	34	34
7-8	2.8-3.1	4	2	33.3	11	14	56.0	17	4	19.0	52	52
8-9	3.1-3.5	34	15	30.6	21	35	62.5	16	1	5.9	122	122
9-10	3.5-3.9	39	15	27.8	34	20	37.0	30	5	14.3	143	143
10-11	3.9-4.3	103	6	5.9	67	13	16.3	37	2	5.1	228	228
11-12	4.3-4.7	149	11	6.9	104	13	11.1	74	2	2.6	353	353
12-13	4.7-5.1	120	3	2.4	102	3	1.9	90	2	2.2	370	370
13-14	5.1-5.5	69	0	0.0	102	0	0.0	81	0	0.0	252	252
14-15	5.5-5.9	40	0	0.0	84	0	0.0	50	0	0.0	174	174
15-16	5.9-6.3	17	0	0.0	45	0	0.0	23	0	0.0	90	90
16 +	6.3 +	12	0	0.0	26	0	0.0	14	0	0.0	51	51
Total	.....	593	60	9.2	650	114	14.9	441	56	5.6	1,884	1,884

Table 2 - Summary of Croaker Escapement by Size

Length	Special Cod End (2½-inch mesh)				Large-Mesh Cod End (2½-inch mesh)				2-inch Mesh Cod End			
	End		Escapement		End		Escapement		End		Escapement	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
7-8	2.8-3.1	5	0	0.0	1	8	88.9	2	1	33.3	17	17
8-9	3.1-3.5	34	41	54.7	12	29	70.7	16	25	61.0	137	137
9-10	3.5-3.9	202	172	46.0	46	118	72.0	276	202	48.3	1,016	1,016
10-11	3.9-4.3	476	372	43.9	169	376	69.0	862	398	31.6	2,653	2,653
11-12	4.3-4.7	464	255	35.5	332	646	66.1	936	200	17.6	2,833	2,833
12-13	4.7-5.1	179	77	30.1	290	424	59.4	457	51	10.0	1,478	1,478
13-14	5.1-5.5	80	17	17.5	185	104	36.0	69	2	2.9	456	456
14-15	5.5-5.9	21	5	19.2	95	28	22.8	25	0	0.0	174	174
15-16	5.9-6.3	18	4	18.2	32	1	3.0	14	0	0.0	69	69
16 +	6.3 +	53	3	5.4	43	0	0.0	16	0	0.0	115	115
Total	.....	1,532	946	38.2	1,200	1,734	59.0	2,672	879	24.8	8,968	8,968

Table 4 - Summary of Sea Trout Escapement by Size

Length	Special Cod End (2½-inch mesh)				Large-Mesh Cod End (2½-inch mesh)				2-inch Mesh Cod End			
	End		Escapement		End		Escapement		End		Escapement	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
5-6	2.0-2.4	0	0	0.0	1	0	0	0.0	0	0	0	0.0
6-7	2.4-2.8	1	1	100.0	0	0	0	0.0	0	0	0	0.0
7-8	2.8-3.1	0	0	0.0	1	0	0	0.0	2	4	2	2.0
8-9	3.1-3.5	3	5	60.0	4	10	41	2	2	8	19	19
9-10	3.5-3.9	3	6	66.7	3	4	61	9	9	9	86	86
10-11	3.9-4.3	4	2	50.0	3	5	37	9	4	60	60	60
11-12	4.3-4.7	9	3	33.3	3	2	18	4	4	39	39	39
12-13	4.7-5.1	6	1	16.7	5	5	18	3	3	38	38	38
13-14	5.1-5.5	6	3	50.0	2	2	10	0	0	25	25	25
14-15	5.5-5.9	10	3	30.0	3	2	7	0	0	14	14	14
15-16	5.9-6.3	2	0	0.0	2	1	5	0	0	5	5	5
16-17	6.3-6.7	2	0	0.0	3	0	0	0	0	3	3	3
17-18	6.7-7.1	1	1	100.0	0	0	0	0	0	0	0	0.0
18-19	7.1-7.5	1	1	100.0	0	0	0	0	0	0	0	0.0
19-20	7.5-7.9	2	0	0.0	0	0	0	0	0	0	0	0.0
20-21	7.9-8.3	10	0	0.0	0	0	0	0	0	0	0	0.0
21-22	8.3-8.7	4	0	0.0	2	0	0	0	0	0	0	0.0
22-23	8.7-9.1	1	0	0.0	5	0	0	0	0	0	0	0.0
23-24	9.1-9.5	2	0	0.0	0	0	0	0	0	0	0	0.0
24-25	9.5-9.9	1	0	0.0	3	0	0	0	0	0	0	0.0
25-26	9.9-10.3	1	0	0.0	0	0	0	0	0	0	0	0.0
26-27	10.3-10.7	1	0	0.0	1	0	0	0	0	0	0	0.0
27 +	10.7 +	0	0	0.0	0	0	0	0	0	0	0	0.0
Total	.....	69	24	34	44	245	37	453	37	453	453	453

special net, however, allows greater escapement of the larger fish: spot over 12 centimeters (about 5 inches) and croakers over 14 centimeters (about 6 inches). In other words, the size range of fish escaping from the special net is slightly larger than that of the 2 $\frac{1}{2}$ -inch mesh net. The first part of each curve in the figures is perhaps not accurate because some very small fish which passed through the cod end

may have escaped from the cover bag, giving a lower percentage escapement than the actual one which could only be obtained by using a very small-mesh cover bag. When the net was lifted from the water, small fish (1 to 3 inches, mostly anchovies, but including a few spot and croaker) were occasionally observed falling from the cover bag. However, it is believed that the cover bag retained all of the fish over 4 inches and that the data are reliable for larger size groups.

The general shape of the "shrimp curves" (Figure 7) is similar to those of the spot and croaker. The percentage escapement of shrimp from the special net occupies a point about midway between the large- and small-mesh nets. The critical portion of these curves is from 10.0 to 13.0 centimeters (3.9 to 5.1 inches). The large-mesh net allowed 16.3 percent of the 10.0 to 10.9-centimeter (3.9- to 4.3-inch) shrimp (75 to 100 count^{2/}) to pass through, while only 5.5 percent of this same size group escaped from the special net. The 2-inch mesh net released 5.1 percent of the 10.0 to 10.9-centimeter size group.

The next size group, 11.0 to 11.9 centimeters or 4.3 to 4.7 inches (55

to 75 count), is best retained by the 2-inch net, with 2.6 percent escapement as compared with 6.9 percent and 11.1 percent from the special- and large-mesh nets, respectively. The large-mesh net allows escapement of about 50 percent more shrimp of this size group than does the special net. However, more detailed data show that most of the additional escapement occurs among the smaller individuals of the size group (65 to 75 count). When broken down into half-centimeter size groups, the percentage of escapement is as follows:

Length		Approx. Count Per Pound	Special- Mesh	Large-Mesh Net
Cm.	In.	No.	Percent	Percent
11.0-11.4	4.3-4.5	65-75	7.0	14.0
11.5-11.9	4.5-4.7	55-65	6.8	8.3

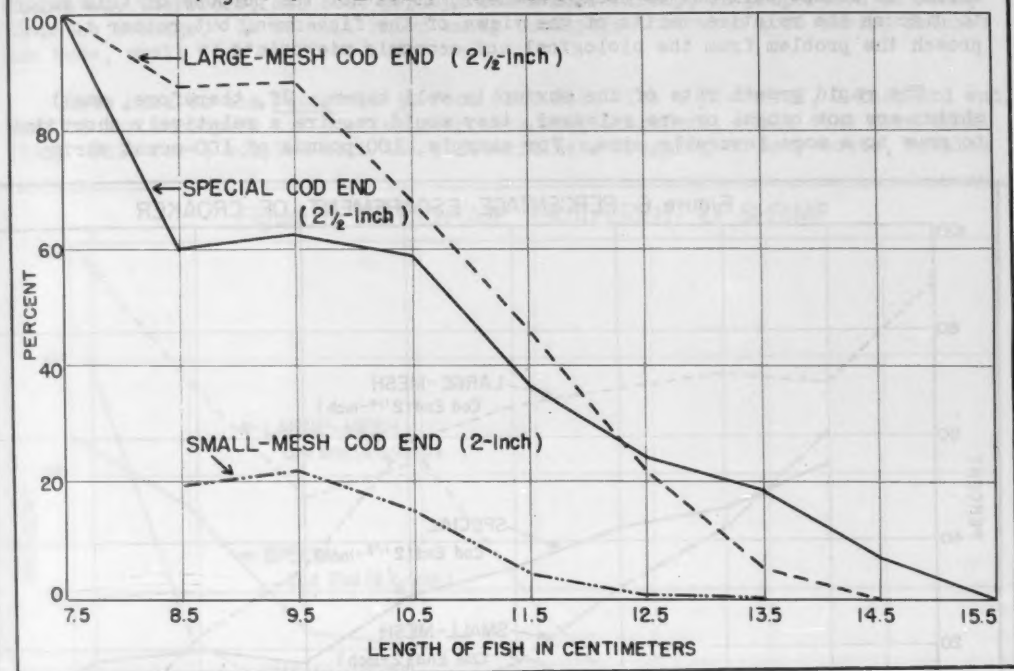
^{2/} NUMBER OF SHRIMP PER POUND.

Table 5 - Summary of Fish Taken in Savings-Gear Experiment

Species	Number	Percent
Croaker	8,968	68.5
Spot	2,762	21.1
Sea trout	453	3.5
Miscellaneous Food:		
Alewife	118	-
Flounder	64	-
Bluefish	20	-
Porgy	8	-
Hogfish	6	-
Sea mullet	6	-
Spanish mackerel	2	-
Catfish	1	-
Total Misc. Food	225	1.7
Non-food:		
Harvest fish	209	-
Sand perch	187	-
Pinfish	122	-
Menhaden	95	-
Hog choker	30	-
Lookdown	13	-
Cutlass fish	4	-
Tongue fish	3	-
Skate	3	-
Hardtail	3	-
File fish	2	-
Hickory shad	2	-
Toad fish	1	-
Total Non-food	674	5.2
Grand total	13,083	100.0

The escapement of shrimp from 12.0 to 12.9 centimeters or 4.7 to 5.1 inches (44 to 55 count) was approximately the same (2.5 to 3.5 percent from all three cod ends.

Figure 5—PERCENTAGE ESCAPEMENT OF SPOT



None of the nets permitted the release of any shrimp over 13.0 centimeters or 5.1 inches (under 45 count).

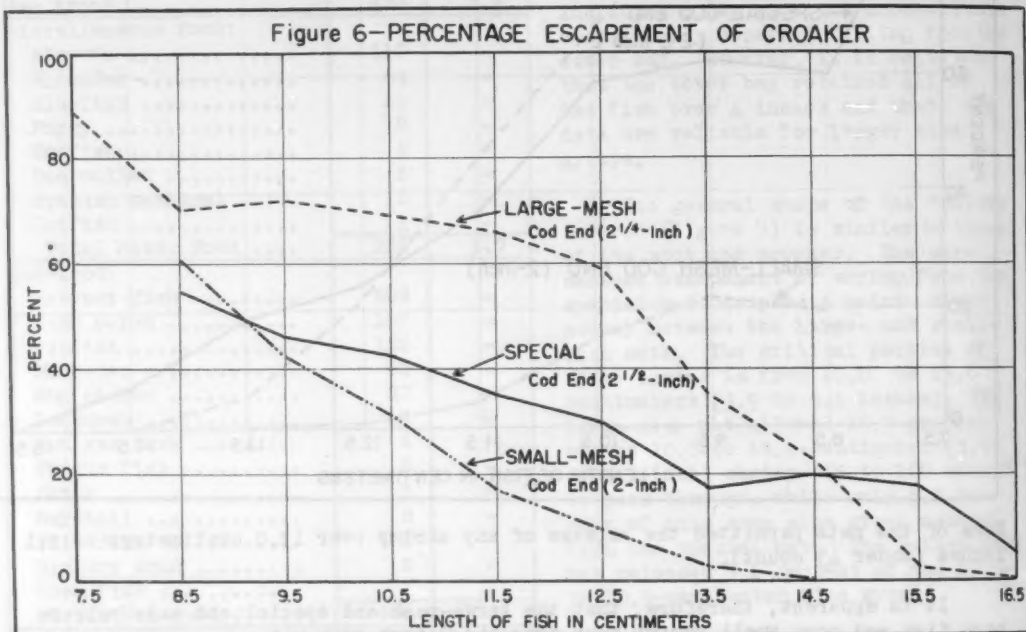
It is apparent, therefore, that the large-mesh and special cod ends release more fish and more small shrimp than does the 2-inch mesh net.

The large (2 1/2-inch) mesh released 59.0 percent and 42.8 percent of the total croaker and spot catch, respectively; the 2-inch mesh released 24.8 percent and 12.2 percent of these same species. It is apparent that a 1/4-inch increase or decrease in stretched-mesh size results in a considerable corresponding increase or decrease in escapement of small fish. The legal minimum mesh size of shrimp nets is 1 3/4-inch stretched mesh—1/4-inch smaller than the smallest mesh used in these experiments. Moreover, it is known that some shrimpers use nets 1/4-inch smaller than the legal size, i.e. nets of 1 1/2-inch mesh. These nets are the same mesh size as the cover bag used in this study and release, for practical purposes, no fish or shrimp.

Escapement of shrimp on a weight basis was also determined. The special and large-mesh net both released slightly under 5 percent of the shrimp, and the 2-inch net released 1.7 percent. Escapement, of course, will vary with the average size of shrimp being taken. When the average size is small, more shrimp will escape than when shrimp are "running" large. The attitude toward catching or re-

leasing small shrimp varies. Most of the dealers, and fishermen who are also dealers, prefer not to catch or handle small shrimp due to their effect on the market and price. Conversely, it has been said that many of the fishermen want to catch every shrimp possible, regardless of size, and that any net allowing shrimp to escape will not be used. However, it is not the purpose of this report to discuss the relative merits of the views of the fishermen, but rather to approach the problem from the biological and economic viewpoints.

The rapid growth rate of the shrimp is well known. If, therefore, small shrimp are not caught or are released, they would require a relatively short time to grow to a more favorable size. For example, 100 pounds of 100-count shrimp



will be equal, about a month later, to 200 pounds of 50-count shrimp--if they all live. Since we do not know the natural mortality rate, we cannot tell exactly what advantage is to be gained. But if we assume a mortality as high as 50 percent in one month, the total weight would remain the same, but the shrimp would be of 50-count rather than 100-count size. A monthly mortality of 50 percent seems unreasonably high and, therefore, it seems certain that it would be economically profitable to release as many small shrimp as possible.

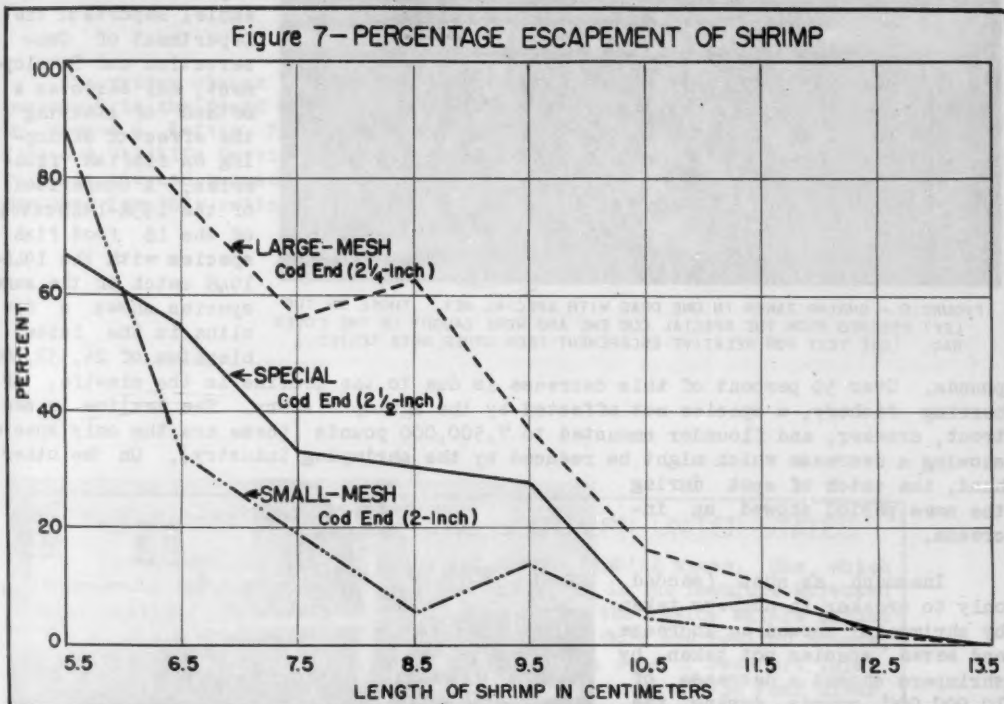
DESTRUCTION OF SMALL FISH: Inasmuch as the study described above was not carried out according to the normal shrimping operations, it was anticipated that the data obtained would not present a true picture of the relative amounts of shrimp and fish taken in the commercial fishery. Arrangements were therefore made with a commercial shrimper to keep accurate records of a number of tows.

Captain Merritt Moore, with the boat Penny, has provided records of 43 consecutive tows, 41 of which were made in Pamlico Sound from August 30 to September 9, 1949. Captain Moore took 122.5 bushels of shrimp, 64.5 bushels of nonedible

food-fish species, and 41 bushels of edible food-fish species. Of the latter, about 4 bushels were of marketable size. However, Captain Moore is probably one of the most astute shrimpers in the business. He uses a try net continuously and does not put over the regular net unless the presence of shrimp in substantial density is indicated, therefore, his boat perhaps takes more shrimp, in proportion to fish, than the average. It is well known among shrimpers that when good shrimp catches are made, small fish are less numerous.

Nets used on the Penny are 50-foot flat nets with a 32-thread, 2-inch cod end. Most of the shrimpers use smaller mesh nets and, therefore, would take more small fish. This fact, coupled with the indiscriminate dragging of many boats, results

Figure 7—PERCENTAGE ESCAPEMENT OF SHRIMP



in greater destruction of small fish than Captain Moore's figures would indicate. A more complete study of finfish destruction is planned in 1950.

Reports of dead fish covering the surface of large areas of Pamlico Sound during the shrimp season have appeared from time to time in newspapers. During the period of the experiment described here, dead fish were observed on only one occasion when the Institute's boat was dragging in the wake of a boat which had just lifted a net. Another Institute observer spent two days aboard the Hatteras, working in and around the main shrimp fleet, and saw no fish floating on the surface. It is believed that former reports have been grossly exaggerated.

That some destruction occurs must be realized due to the nature of the operation. Small fish are caught, and in some cases, in large numbers. However, many of the fish are not dead and are able to swim away when put back in the water. The

actual amount of destruction cannot be determined from studies to date; nor can the effect of this destruction on the croaker, sea trout, and spot fisheries. Catches



FIGURE 8 - SHRIMP TAKEN IN ONE DRAG WITH SPECIAL NET. THOSE ON THE LEFT ESCAPED FROM THE SPECIAL COD END AND WERE CAUGHT IN THE COVER BAG. (SEE TEXT FOR RELATIVE ESCAPEMENT FROM OTHER NETS TESTED.)

of these species have shown fluctuations in the past and will undoubtedly continue to do so.

An examination of the catch records in North Carolina, as reported in the Biennial Reports of the Department of Conservation and Development, may serve as a method of studying the effect of shrimping on finfish fisheries. A comparison of the 1938-1940 catch of the 18 food fish species with the 1946-1948 catch of the same species shows a decline in the latter biennium of 26,552,600

pounds. Over 50 percent of this decrease is due to the decline in the alewife, or herring fishery, a species not affected by the shrimp fishery. The decline in sea trout, croaker, and flounder amounted to 7,500,000 pounds (these are the only species showing a decrease which might be reduced by the shrimping industry). On the other hand, the catch of spot during the same period showed an increase.

Inasmuch as spot (second only to croaker in numbers taken by shrimpers) showed an increase, and seven species not taken by shrimpers showed a decrease of 19,000,000 pounds during the heavy shrimping years, it would be difficult to ascribe decreases in finfish to destruction of young by the shrimp industry.

RECOMMENDATIONS: Inasmuch as the extent of current finfish destruction has not been adequately determined, there is as yet no biological basis for recommending a change in the present shrimping laws relating to mesh construction or size.



FIGURE 9 - SHRIMP TRAWLER PENNY.

It is pointed out, however, that the use of larger mesh nets, up to $2\frac{1}{2}$ -inch (stretched mesh) standard twine or $2\frac{1}{2}$ -inch multiple twine, would release more small fish and small shrimp, thereby reducing labor and wearing of gear and providing whatever biological and economic benefits that might result from such releases. While accomplishing the above, the larger mesh sizes do not release sufficient shrimp to represent a significant loss.

Inasmuch as there appear to be no disadvantages in using larger mesh nets, their use by the shrimping industry should be encouraged.

Further studies, particularly regarding the amounts and kinds of fish taken by commercial shrimping vessels, are recommended for the 1950 shrimp season.

ACKNOWLEDGMENTS

The writer wishes to acknowledge the assistance of the following Institute personnel in the field work: Captain John G. Wegener, Mr. A. Carter Broad, and Mr. Horace G. Loftin, Jr. Mr Boris O. Knake, Fisheries Engineer of the U. S. Fish and Wildlife Service, who was an observer during much of the work and gave valuable aid and suggestions regarding the handling of the gear, also drew the sketches for this article.



THE SHRIMP FISHERY OF THE SOUTHERN UNITED STATES

North Carolina has two principal shrimp fishing areas. One, which represents the northern limit of the fishery, is in the Beaufort-Morehead City section. Here most of the fishing is in the inside waters around the mouths of the Neuse and Newport Rivers, in Core and Pamlico Sounds, and in the coastal waters a short distance each side of Beaufort Inlet. The second area is in the coastal waters off the mouth of Cape Fear River, with Southport as the base for operations. Principal fishing grounds extend about 10 miles to the west from Cape Fear Point; but scattered fishing is done down to about Little River Inlet.

About 84 percent of the total yearly shrimp catch is obtained from August through November with the peak during October.

--Fishery Leaflet 368



June 1950

BYPRODUCTS: A number of hatchery feeds were prepared and transported to the Leavenworth, Washington, Hatchery for the summer feeding tests. These included vacuum-dried salmon-viscera meal; frozen salmon viscera; frozen salmon eggs, preserved salmon eggs; frozen whole cod; frozen whole whale liver; and other frozen and dried meals, including Animal Protein Factor concentrates.

* * *

Biotin assays were completed on all the meals being used in the test hatchery diets.

* * *

REFRIGERATION: After three months of storage, examination of the frozen oysters treated with ascorbic acid and glazes indicated that all samples continued to receive acceptable scores and no particular trends are as yet evident.

* * *

Tests on weight-loss determinations in connection with the project on freezing pink salmon fillets indicated that there had been no significant weight loss in storage of the samples except those treated with a thermoplastic wax dip. The wax coating on the latter had cracked badly allowing significant moisture loss and excessive surface dehydration.



REFRIGERATED LOCKER STORAGE OF FISH AND SHELLFISH

Two principal methods are available for preparing fish for locker or home freezing. Whole fish, either partially dressed or as they come from the water, can be frozen without further treatment; or the fish can be cut into chunks, steaks, or fillets, and packaged in a suitable wrapping material or packed in glass jars. Shellfish are usually best handled in airtight containers such as glass jars.

--Fishery Leaflet 128

TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

During May 1950, a total of 102 vessels of 5 net tons and over received their first documents as fishing craft--39 less than in May 1949. Washington led with 21 vessels, followed by Alaska with 14, and California with 9 vessels, the Treasury Department's Bureau of the Customs reports.

During the first five months of 1950, a total of 351 vessels were documented, compared with 401 during the same period in 1949.

Vessels Obtaining Their First Documents as Fishing Craft, May 1950					
Section	May		Five mos. ending with May		Total
	1950.	1949	1950	1949	1949
	Number	Number	Number	Number	Number
New England	3	8	15	11	35
Middle Atlantic	12	4	24	25	44
Chesapeake Bay	9	10	31	27	87
South Atlantic and Gulf	33	34	126	142	369
Pacific Coast	31	56	97	108	327
Great Lakes	-	4	4	25	38
Alaska	14	24	54	60	96
Hawaii	-	1	-	3	5
Unknown	-	-	-	-	1
Total	102	141	351	401	1,002

Note: Vessels have been assigned to the various sections on the basis of their home port.



ECA Procurement Authorizations for Fishery Products

July 1950

No procurement and reimbursement authorizations for fishery products (edible and inedible) were announced by the Economic Cooperation Administration during July 1950. In addition, no cancellations or decreases affecting previous authorizations for fishery products were reported.

Total ECA procurement authorizations for fishery products from April 1, 1948, through July 31, 1950, amounted to \$28,286,000 (\$16,296,000 for edible fishery products, \$10,450,000 for fish and whale oils, and \$1,540,000 for fish meal).



European Recovery Program Notes

EUROPEAN PAYMENTS UNION: Commenting on the Paris action of the Organization for European Economic Cooperation (OEEC), the Acting Administrator of ECA stated that the establishment of the European Payments Union with all Marshall Plan countries as full and active members is one of the most significant and far-reaching developments of the European Recovery Program. He further stated that "the Payments Union is the first step towards the goal of a unified European economy. Currency convertibility, made possible by the payments plan, will lead to greatly increased intra-European trade which in turn will lessen European dependence on extraordinary dollar aid."

FOOD INDUSTRY STUDY: Two groups of specialists from 15 Marshall Plan countries left France during the month to make studies of American techniques in timber production; and in the handling of perishable foodstuffs, including transport, storage, and use of refrigeration. The perishable foods team, set up as a 54-man group, will make an eight-week study. The members are from Austria, Belgium, Denmark, France, the Federal Republic of Germany, Italy, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. The food industry study is designed to help Europeans eliminate present-day waste in the movement of perishable foods. In requesting this study, OEEC pointed out that the use of refrigerated depots and vehicles in the movement of perishable foods is much more highly developed in the United States than in Europe. The study will also aid food production techniques in Africa, as the British, French, and Belgian members of the team will pass on the information gained here to their countries' overseas territories.



Federal Purchases of Fishery Products

DEPARTMENT OF THE ARMY, May 1950: The Army Quartermaster Corps purchased 1,270,467 pounds (valued at \$439,998) of fresh and frozen fishery products during May this year for the U. S. Army, Navy, Marine Corps, and Air Force for military feeding (see Table). Compared with the previous month, May purchases were up 28 percent in quantity, but only 1 percent in value; and compared with the corresponding month a year earlier, this May's purchases were 3 percent greater in quantity and 12 percent in value.

Purchases of Fresh and Frozen Fishery Products by Department of the Army (May and the First Five Months, 1949 and 1950)							
Q U A N T I T Y				V A L U E			
M a y		January - May		M a y		January - May	
1950	1949	1950	1949	1950	1949	1950	1949
lbs.	lbs.	lbs.	lbs.	\$	\$	\$	\$
1,270,467	1,234,229	4,832,873	6,574,933	439,998	393,676	2,062,398	2,214,499

For the first five months this year total purchases were still below the corresponding period a year ago by 26 percent in quantity and 7 percent in value.



Great Lakes Fishery Investigations

POSSIBLE CONTROL OF GREAT LAKES SEA LAMPREYS BY ELECTRONIC DEVICES: For the development of lamprey-control devices, a contract was awarded to the Cook Research Laboratories of Chicago, Ill., on June 25 by the U. S. Department of the Interior. The Fish and Wildlife Service is seeking to develop radar-type instruments, antisubmarine sound generators, and other electronic devices to electrocute the sea lampreys which have virtually destroyed the lake-trout fishery in most of the Great Lakes.

Preliminary research by the Cook laboratories gives hope of finding methods of controlling the sea lamprey. The Cook Research Laboratories will have in operation by October 15 an experimental device on Carp Lake River in Michigan for electrocuting downstream-migrating lampreys. The electrical device on Carp Lake River is designed for killing the young sea lampreys that are moving downstream from their rearing areas in the headwaters of the river.

The goal of the Cook laboratories is to develop a device—electromagnetic, sonic or light—which is selective in operation, killing only sea lampreys. Such a device, or combination of devices and techniques, may be developed by next year. Experiments have already progressed to the point that it seems possible that a method of killing the upstream-migrating (or spawning) lampreys without harming spawning game fish can be discovered. This is considered to be the most promising development in sea lamprey control work.

According to Fish and Wildlife Service scientists, who are working with the Cook Research Laboratories in the control program, the sea lamprey has peculiarities which may spell its own destruction. For example, the lamprey migrates at night to spawn in the upper reaches of rivers and streams. Bright underwater lights may confuse the lamprey, making his electrocution easier. Sound waves, produced by sonic generators tuned to the heartbeat of lampreys, may also kill them. A combination of these factors may be developed into a positive lamprey-control program.

Desirable game fish may be protected from electrocution devices by their ability to detect and stay away from electric fields. Sea lampreys, on the other hand, will swim right into charged areas and be killed or so severely injured that they will die within a few hours. Sonic or light devices, on the other hand, may repel lampreys but not fishes, enabling game fish to proceed upstream during certain periods when the electrical devices are shut off.



Gulf Fishery Investigations

The Gulf of Mexico, despite its importance to the economy of the South and the Nation, is one of the least understood of the world's major bodies of water. This applies not only to the mass water movements within the Gulf, and to the nutrient salts which are available to support marine life, but also to the abundance, ranges, distributions, and life histories of the many species of fish occurring in that body of water. The Fish and Wildlife Service, the primary research agency of the newly-formed Gulf States Marine Fisheries Compact, has the responsibility for solving these unknowns through the Service's Gulf Fishery Investigations. (The Gulf Fishery Investigations under the Branch of Fishery

Biology with its vessel Alaska will deal with the biological and oceanographic phases of the Gulf of Mexico's problems, while the Service's Gulf Exploratory Fishery Program under the Branch of Commercial Fisheries with its vessel Oregon will concentrate on the exploration of the Gulf's fishery resources and their commercial possibilities.)

The first step of the Investigations is to survey the physical oceanography of the Gulf as a whole. The recently-organized Oceanographic Department of Texas A. and M. is authorized to design and execute a program to define the pattern of currents and temperatures, surface and subsurface, for the entire Gulf, and how these vary throughout the year.

Complementing this, analyses of the quantities and distribution of nutrient salts available in these waters will be carried on in order to gain an understanding of the fertility of these waters. Except for that portion which is influenced by the major rivers (each of which contributes nutrients leached out of the land), the Gulf is assumed to be far less productive than the waters of more northern latitudes.

Along with these studies, the microscopic life of the seas, known as plankton, will be studied quantitatively, not only for the microscopic plant and animal life, but especially for the eggs and larvae of fish. Adequate sampling of a body of water as extensive as the Gulf presents a major problem. Advantage will be taken of recent developments in high speed nets - possibly of the Hardy plankton sampler. The relative sterility of the waters should reduce the problem of sorting, identifying, and measuring, to something within limits.

Here lie the best clues (for those fish with pelagic eggs) to the areas and to the time of spawning, to the species, and even to their relative numbers. In this study lies also the clue to the variations in survival, which becomes increasingly apparent as the biggest contributing factor to the fluctuations in abundance of all of our fisheries, of which the sardine study on the Pacific Coast is an example.

Along with these basic studies there will be investigations into the life history of some of the species of greatest commercial importance. For one, the menhaden, which is now the greatest contributor (in tonnage) to the fisheries production of the United States, and whose life history is virtually a blank.

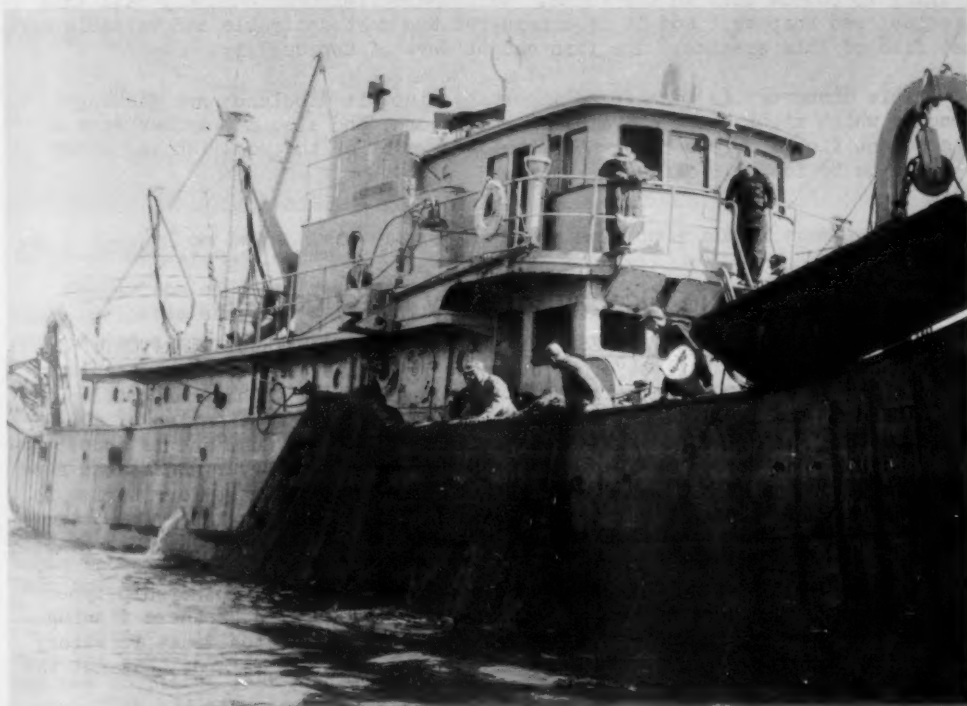
The solution of all these problems, and more, will be sought under the Gulf Fishery Investigations, with headquarters at Galveston, Texas. The Alaska, the Service's Gulf Fishery Investigations vessel, is now being outfitted for this work in the Gulf. Obviously, the scope of the Investigations exceeds the capacity of any one agency. Therefore, the Service is seeking cooperation with the many State and private institutions in the States making up the Compact. Besides Texas A. and M., the University of Miami and Louisiana State University have already agreed to work on a part of the program; others will join so that the whole can be subdivided into segments small enough to be mastered.



North Atlantic Fishery Investigations

"ALBATROSS III" LOCATES LARGE NUMBERS OF TWO-YEAR OLD SCROD HADDOCK: Large numbers of two-year old scrod haddock were caught at numerous places on Georges Bank by the Albatross III on its Cruise 37 (July 6 to July 17, 1950). After completing about half of a census of the fish on this Bank, the vessel returned to Woods Hole before the cruise was completed because of trouble with the trawl-winch motor.

During the cruise, a series of 31 shoal-water stations in the central part of Georges Bank was completed. Data on the size and numbers of all species of fish, bottom temperatures, bottom samples, and bottom water samples were obtained at each station.



HAULING UP THE BELLY OF THE ALBATROSS III'S OTTER TRAWL NET ON A RECENT CRUISE.



North Pacific Exploratory Fishery Program

RED ROCKFISH FISHING GROUNDS DISCOVERED ON UNCHARTED SEAMOUNT: What is apparently an unknown seamount at 46°44' N. latitude, 130°47' W. longitude, was located by the John N. Cobb, the Service's North Pacific exploratory fishing vessel, on August 3. This seamount, which is not shown on navigation charts for the area, is about 280 miles west of Willapa Bay on the Washington coast. The discovery was made from routine readings of electronic devices while the vessel was conducting albacore tuna explorations in the North Pacific.

Soundings taken of this seamount show that the shallowest portion is 22 fathoms deep, and there is an extensive level area at 70 fathoms. Surrounding ocean waters are 1,400 to 1,600 fathoms deep.

The vessel set long-line fishing gear on the seamount grounds. When the gear was hauled up, it was heavy with red rockfish (Sebastes ruberrimus), averaging 15 pounds each in the round. West Coast fishermen commonly call this species "red snapper," and it is considered the most desirable and valuable market fish of this species. The fish caught were of top quality.

This discovery is considered important since it discloses new fishing grounds which might prove of value in the future, and also may answer some of the scientific questions concerning the occurrence of the rockfish and other species to be found in offshore waters.



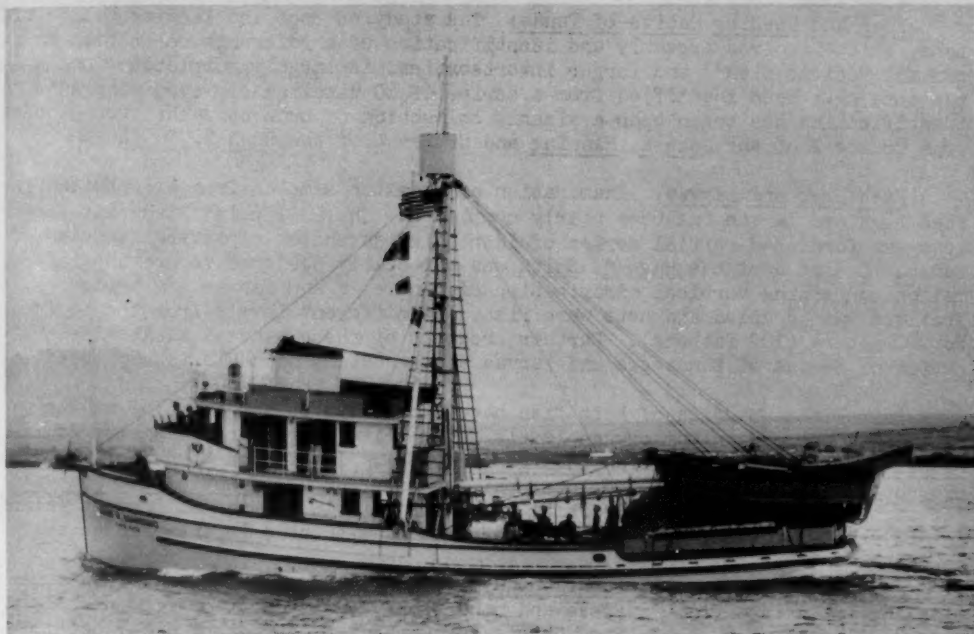
Pacific Oceanic Fishery Investigations

OBSERVER ACCOMPANIES JAPANESE TUNA FISHING FLEET IN TRUST TERRITORY: In early June this year, a fleet of 25 Japanese long-line tuna fishing vessels in the company of a 10,000-ton mothership set out on a tuna fishing expedition in the waters of the Caroline and Marshall Islands region. A scientist of the Pacific Oceanic Fisheries Investigations met this fleet off Guam and is accompanying it during the voyage as a scientific and technical observer and as the representative of the High Commissioner of the United States Trust Territories in the Pacific. Two Japanese research ships will join the fleet later for oceanographic and biological studies.

In May 1950, SCAP authorized Japanese operation of only mothership-type tuna fishing in the area extending south from the authorized Japanese fishing area to the Equator, including the waters in the United States Trust Territory around the Caroline Islands, the Marianas and the Marshall Islands, but not the Gilbert Islands.

PROGRESS REPORT FOR FISCAL YEAR 1950: This is a short summary of the work of the Pacific Oceanic Fishery Investigations during the fiscal year ending June 30, 1950.

Morphometric Studies: Efforts during the year were concentrated on the morphometric approach to racial divisions and migrations of Pacific tunas. Extensive series of measurement data have been gathered on tunas for the Hawaiian area and have been summarized statistically to serve as a basis of comparison with other areas. Data are being gathered on tunas of the Phoenix and Line Islands by the Investigations' research vessels.



JOHN R. MANNING, ONE OF THE THREE RESEARCH VESSELS OF THE PACIFIC OCEANIC FISHERY INVESTIGATIONS, AT PEARL HARBOR.

Comparison of data from Hawaii with similar data from the American west coast indicates that the two populations are distinct. Comparisons of other species and other areas are in progress.

Tagging of Tunas: Preliminary experiments indicate that both a hook-type external tag (or a modification thereof) and an internal tag may be practical for use on skipjack tuna. The latter-type tag would be recovered by means of an electronic detector, the design of which is under consideration.

Preliminary trials have shown that tuna may be transported alive in the bait well of the research vessel Hugh M. Smith for periods of at least a day or two. Perhaps live tunas may be successfully held in ponds for testing types of tags and for other purposes.

Hydrographic Observations: A series of aerial hydrographic observations from the Hawaiian Islands across the equatorial counter-equatorial current system was completed last winter and a similar series has been begun for the summer season. In addition, two temperature sections have been taken in the region as far as the equator. The object is to determine fluctuations occurring in the equatorial current system, and to furnish information concerning the effect of hydrographic conditions on local and seasonal productivity and on abundance of tunas.

Distribution and Abundance of Tunas: Work on distribution and abundance of tunas in relation to their environment and productivity of various areas of the sea has been started. Fifty baskets of specially designed tuna long lines have been built to study vertical distribution of tunas and a Japanese line hauler, installed on the Hugh M. Smith, has been found to be practical.

Food and Feeding Habits of Tunas: The study of food and feeding habits of tuna, which involved assembly and identification of a reference collection of central Pacific fish and larger invertebrates, is largely completed. Stomach contents have been identified from a series of 60 Hawaiian big-eyed tuna and identification has begun upon a sizable collection of tuna stomachs brought back from Cruise 2 of the John R. Manning and Cruise 4 of the Hugh M. Smith.

Fish Eggs and Larvae: Examination of plankton samples from all cruises for fish eggs and larvae has been nearly completed. The Philippine Fisheries Program has furnished partial series of identified juveniles of several species of tunas. Cruise 4 of the Hugh M. Smith was especially designed to provide information concerning vertical distribution of tuna eggs and larvae. A series of stations was occupied and nets were fished at different levels from the surface to 200 meters (109 fathoms). Further progress of these studies awaits identification of series of tuna eggs and larvae after sorting of hauls is completed.

Bait Fish: Studies of bait fish have progressed to the point of making determinations of minimum oxygen levels for the iao (a silverside smelt, H. insularum) and the mosquito fish (Mollienesis sp.). It has not been possible with present facilities to hold the local bait anchovy (nehu, Anchoviella purpureus) for such work. Since the University of Hawaii's field station at Coconut Island is now usable, it will be possible to experiment with this important species.

Japanese Fisheries Literature Study: Compilation and analyses of information and literature from Japanese and other sources are about 50 percent complete—53 of about 60 translated papers have been reproduced and distributed. These papers in the future will be released in the "Special Scientific Report: Fisheries" series. Three reports have been written on material gathered in Japan. Some fishing methods used by the Japanese are being adapted for use by POFI. Information on fishing methods has been sent to other activities of the Fish and Wildlife Service and interested private groups. A film depicting Japanese long-line fishing methods was exhibited to the Hawaiian fishing industry during the year.

LONG-LINE TUNA FISHING NEAR CANTON ISLAND FOUND EXCELLENT BY "HUGH M. SMITH:" Long-line tuna fishing in waters adjacent to Canton Island produced excellent catches in a preliminary trial of this gear by the Pacific Oceanic Fishery Investigations research vessel Hugh M. Smith during the week of July 16. Fishing 30 baskets of flag-line gear comparable to that employed in the Hawaiian fisheries, catches were made consisting of 73 yellowfin tuna, 4 albacore tuna, and 6 marlin. The yellowfin were of 60- to 100-pound size. The catch rate of about 7.5 fish per hundred hooks is more than double the average take in the Hawaiian flag-line fishery.

The week's flag-line fishing was undertaken before starting a series of oceanographic stations running from 5° S. latitude to Oahu along 158° W. longitude, since it offered an excellent opportunity for preliminary tests of the theory advanced by POFI scientists that good flag-line fishing should be found in subsurface waters near Canton Island. This was the first flag-lining ever done in this vicinity and appears to bear out the theory.

The vicinity of Canton Island is expected to contain a sizable population of tuna because of the upwelling of deep water along the equator which enriches this region, providing nutrients for the small organisms at the bottom of the food chain which ultimately supports the tunas and other large, predacious fish.

The vessel reported also that sharks were very abundant and that many were taken on the flaglines. About 25 percent of the tunas caught were partly eaten by sharks before being landed.

Surface schools of both yellowfin and shipjack tuna were observed to be very numerous at Canton Island and elsewhere in the Phoenix group. Two other POFI research vessels, the John R. Manning and the Henry O'Malley, were due to arrive at Canton Island during the week of July 24 and plan to spend the next month measuring the abundance of these surface schools of tuna and determining what quantities can be caught by live-bait and purse-seine fishing. The Henry O'Malley was to bring bait from Midway and also use bait fish from the lagoons at Canton and Hull Islands.



Pribilof Islands Fur-Seal Take For 1950

A total of 60,090 fur-seal skins were taken this year in the Government-administered sealing operations on Alaska's Pribilof Islands, the Secretary of the Interior announced August 7. The annual sealskin harvest began on June 10 and continued through July 27.

Last year's total was 70,891 skins, while the average annual yield over the past ten years has been 66,920. Fewer seals were killed this year as a result of normal fluctuations—such as occur in all wildlife populations. Variations

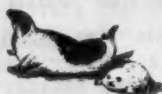


FUR-SEAL HAREMS ON POLOVINA ROOKERY, ST. PAUL ISLAND, ALASKA.

in food supply, the abundance of predators, and other natural mortality factors determine the number of seals available. Stabilization of the yearly kill at about 67,000 seals indicated that the seal herd may have reached its maximum size.

The fur-seal industry on the Pribilofs is a responsibility of the United States Government, but 20 percent of the annual take of skins becomes the property of the Canadian Government under the provision of the Fur Seal Act of 1944 between the two countries. The U. S. seal skins are dressed and dyed by a St. Louis fur company (Government agents for the processing and selling of the skins) and are sold at public auction. The net proceeds go to the U. S. Treasury.

Approximately 80 percent of the world's fur seals come to the Pribilof Islands to breed. During the winter they range southward as far as southern California and then return in the spring to the barren, volcanic Pribilofs. The pelts are obtained chiefly from three-year-old males. Pelagic sealing--the killing of seals while they are at sea--is prohibited under the agreement between Canada and the U. S.



Service Film Selected For Showing At Edinburgh Film Festival

Among the 17 United States Government films selected for showing at the Edinburgh Film Festival to be held at Edinburgh, Scotland, August 20-September 10, 1950, is the Fish and Wildlife Service film Food for Thought, the Department of State reported on August 8.

The selections have been made from films produced by the following Departments and Agencies: Department of Agriculture; Department of the Army; Federal Security Agency (Children's Bureau); Department of the Interior; Department of the Navy; Department of State; Department of the Treasury (Coast Guard); and Veterans Administration.

The Edinburgh Film Festival was organized in 1947 under the sponsorship of a committee widely representative of the film interests in Great Britain and in close collaboration with the British Government for the purpose of showing realist, documentary, and experimental films on a noncompetitive basis. Every film selected by the British Committee for showing at the Festival is awarded a certificate. The United States participated informally in the 1948 and 1949 Festivals through the American Embassy at London.



South Pacific Fishery Investigations

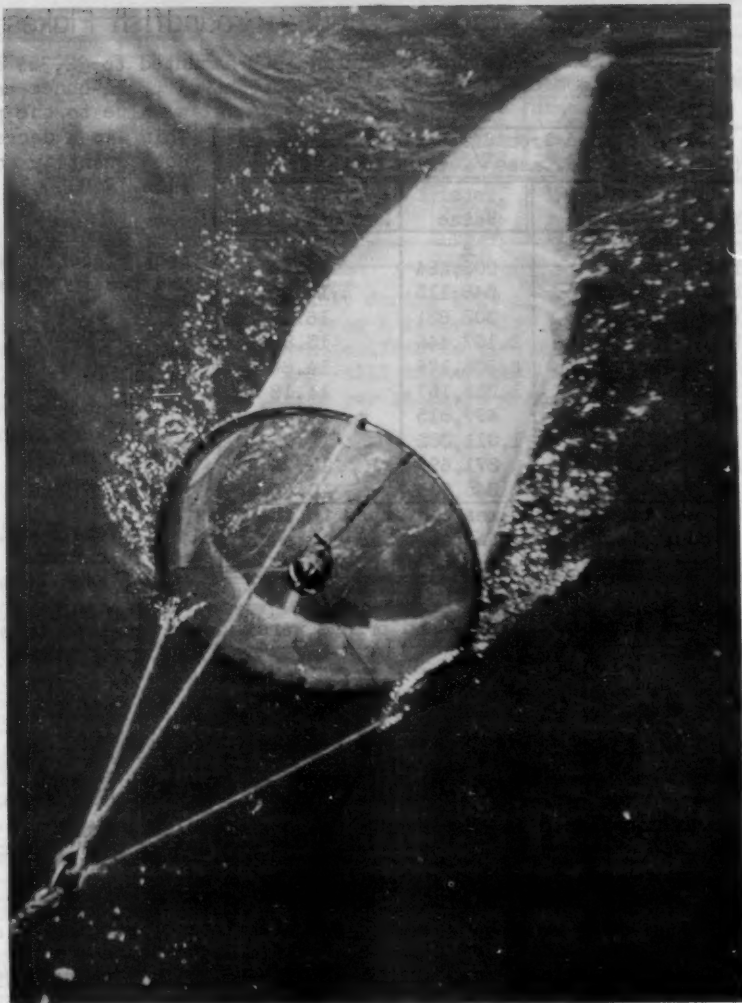
"BLACK DOUGLAS" MAKES DEEP PLANKTON TOWS: Four deep plankton tows (to a depth of 425 meters or 297 fathoms) were made by biologists aboard the Black Douglas, the Service's South Pacific Fishery Investigations vessel which is working on the cooperative Pacific sardine research program with the Scripps Institution of Oceanography, the California Division of Fish and Game, and the California Academy of Science. These tows were made on the vessel's Cruise XVI from July 6 through July 24, in the area between Cape Mendocino and Pt. Sur, California. Plankton volumes were found to be similar to those of the June cruise

and generally less abundant than in collections made the early part of this season. Various fish eggs and larvae were present in almost every haul made during the July cruise.

No schools of sardines were seen. One school of what was most likely jack mackerel was seen offshore to the southwest of Monterey. Lines were trolled to locate albacore, but none was seen or caught. Night dip-net fishing results were good--sauries and lanternfish were the most common fish caught. Very large numbers of adult sauries were seen on most all inshore stations that were occupied at night, and although some were observed over the whole pattern, they were fewer offshore.

Four fur seals were observed off Cape Mendocino and one off San Francisco.

Black-footed albatross appeared fewer than on previous cruises of this year.



ONE-METER PLANKTON NET USED IN THE COOPERATIVE PACIFIC SARDINE RESEARCH PROGRAM BY THE BLACK DOUGLAS, RESEARCH VESSEL OF THE SERVICE'S SOUTH PACIFIC FISHERY INVESTIGATIONS. DEVICE SUSPENDED IN MOUTH OF NET IS A CURRENT METER WHICH MEASURES THE AMOUNT OF WATER STRAINED DURING EACH HAUL.



U.S. Pack of Canned Groundfish Flakes, 1949

Groundfish flakes canned during 1949 amounted to 32,365 standard cases (cases of various sizes converted to the equivalent of 48 14-ounce cans to the case) with a value to the packers of \$506,224. This was a decrease of 8 percent in both quantity and value as compared with 1948.

Pack of Canned Groundfish Flakes, 1940-49 (Quantity in Std. Cases ^{1/} & Value to the Cannery)			
Year	Quantity Std. Cases ^{1/}	Total Value \$	Avg. Price Per Std. Case ^{1/} \$
1949	32,365	506,224	15.64
1948	35,014	548,113	15.65
1947	18,560	303,831	16.37
1946	151,886	2,107,446	13.88
1945	157,135	2,332,176	14.84
1944	92,950	1,318,167	14.18
1943	33,318	497,815	14.94
1942	83,729	1,011,382	12.08
1941	34,661	371,699	10.72
1940	32,477	345,938	10.65

^{1/}Cases of various sizes converted to the equivalent of 48 cans to the case, each can containing 14 ounces of fish.

Canning of groundfish flakes took place in two plants in Maine and two in Massachusetts.

Production of this product during 1949 was the second lowest during the past ten years; the lowest production was in 1947 when 18,560 were canned (see table). In value, the 1949 production was in fifth place.

Average price per standard case at the canners' level in 1949 was only 1 cent below 1948, which indicated that demand continued along

the same level as in 1949 and prices were almost equal to those which prevailed in 1948.

U. S. and Alaska Pack of Canned Salmon, 1949

Salmon canned in the Pacific Coast states and Alaska in 1949 amounted to 5,524,916 standard cases, valued at \$103,430,980 to the canners (see table 1)—an increase of 15 percent in quantity, but a decline of 14 percent in value, compared with 1948. Alaska accounted for 79 percent of the 1949 pack; Puget Sound, 17 percent; the Columbia River Districts of Washington and Oregon, 3 percent; and the coastal areas of the Pacific Coast States, 1 percent. Pink salmon, which are canned principally in the Southeastern and Central Districts of Alaska, and in the Puget Sound District of Washington, accounted for 59 percent of the volume and 50 percent of the value of the 1949 salmon pack.

Salmon were canned at 34 plants in Washington, 11 in Oregon, 3 in California, and 117 in Alaska.

Table 1 - U. S. and Alaska Pack of Canned Salmon by Species and Area (Quantity in Standard Cases ^{1/} and Value to Cannery)									
Species	Alaska			Pacific Coast States			Total U. S. & Alaska		
	Std. Cases ^{1/}	Total Value	Avg. Price Per Std. Case ^{1/}	Std. Cases ^{1/}	Total Value	Avg. Price Per Std. Case ^{1/}	Std. Cases ^{1/}	Total Value	Avg. Price Per Std. Case ^{1/}
Chinook or king	50,007	\$1,258,463	\$25.17	157,861	\$4,537,608	\$28.76	207,868	\$5,796,071	\$27.88
Chum or keta	499,226	7,572,386	15.17	219,652	3,121,446	14.23	718,878	10,753,832	14.97
Pink	2,682,330	45,921,708	16.00	553,987	8,832,216	15.94	3,236,317	51,753,924	15.99
Red or sockeye	987,628	25,504,967	25.38	107,601	3,419,301	31.78	1,095,229	28,924,268	26.90
Silver or coho	122,352	4,004,944	32.73	85,143	1,945,472	22.85	207,495	5,950,416	28.71
Steelhead	50	700	14.00	8,861	243,575	27.48	8,911	244,275	27.39
Total	4,391,591	\$1,263,168	18.50	1,153,343	\$2,167,612	18.76	5,544,934	\$103,430,980	18.72

^{1/}Cases of various sizes converted to the equivalent of 48 1-pound cans per case, each can containing 16 ounces.

Table 2 - U. S. and Alaska Pack of Canned Salmon, 1940-49 (Quantity in Standard Cases¹ and Value to Cannery)

Year	Alaska			Pacific Coast States			Total U. S. & Alaska		
	Std. Cases ¹	Total Value	Avg. Price Per Std. Case ¹	Std. Cases ¹	Total Value	Avg. Price Per Std. Case ¹	Std. Cases ¹	Total Value	Avg. Price Per Std. Case ¹
1949	4,391,591	\$81,263,168	\$18.50	1,133,385	\$28,167,612	\$19.56	5,524,916	\$103,430,980	\$18.72
1948	4,014,891	96,528,730	24.04	810,075	24,008,466	29.64	4,824,966	120,537,196	24.98
1947	4,312,172	88,666,301	20.56	1,329,226	31,959,134	24.06	5,641,398	120,635,435	21.38
1946	3,949,878	53,157,194	13.46	560,289	17,003,459	30.35	4,510,167	70,160,653	15.56
1945	4,350,471	44,644,303	10.26	557,769	7,942,102	14.24	4,908,240	52,586,405	10.71
1944	4,893,059	51,196,140	10.46	245,588	5,187,136	21.12	5,138,647	56,383,276	10.97
1943	5,428,318	57,824,267	10.65	275,889	5,110,847	18.53	5,704,207	62,935,114	11.03
1942	5,075,974	48,300,209	9.52	759,032	13,673,968	18.02	5,835,006	61,974,177	10.62
1941	6,932,040	56,217,601	8.11	899,589	11,199,317	12.45	7,831,629	67,416,918	8.61
1940	5,069,343	31,474,492	6.21	535,663	6,575,176	12.27	5,605,006	38,049,668	6.79

¹Cases of various sizes converted to 48 1-pound cans per case.

Prices of canned salmon dropped considerably during 1949 as compared with the prevailing prices in 1948 (see table 2). From a record high of \$24.98 per standard case in 1948, prices of canned salmon declined to \$18.72 per standard case in 1949. This latter price, however, was still higher than for any year previous to 1947. The price in 1947 was \$21.38 per standard case.

U.S. Pack of Canned Oysters, 1949

Table 1 - Pack of Canned Oysters by States, and by Size of Can and Case, 1949 (Quantity in Standard¹ and Actual Cases, and Value to the Cannery)

State	Quantity	Total Value	Avg. Price Per Std. Case ¹	Size of Can and Case	Quantity	Total Value	Avg. Price Per Actual Case
	Std. Cases ¹				Actual Cases ¹		
North Carolina, Georgia, and Alabama	23,094	361,339	15.65	4-2/3 ounces net (48 cans)	283,981	4,175,746	14.70
South Carolina	66,336	862,841	13.00	5 ounces net (48 cans)	43,840	788,140	17.98
Mississippi	72,142	1,042,959	14.46	6-1/2 ounces net (48 cans)	61,410	996,829	16.23
Louisiana	177,357	2,491,455	14.05	Other sizes (standard cases)	36,430	564,492	15.50
Washington and Oregon ..	113,989	1,766,813	15.50				
Total	452,918	6,525,207	14.41	Total	425,661	6,525,207	-

¹"Standard cases" represent cases of various sizes converted to the equivalent of 48 cans to the case, each can containing 4-2/3 ounces (drained weight) of oyster meats.Table 2 - Pack of Canned Oysters, 1940-49 (Quantity in Std. Cases¹ & Value to the Cannery)

Year	Atlantic Coast and Gulf States	Pacific Coast States	Total
	Std. Cases ¹	Std. Cases ¹	Std. Cases ¹
1949	338,929	113,989	452,918
1948	273,591	83,489	357,080
1947	318,550	91,937	410,487
1946	261,622	129,213	390,835
1945	220,847	5,117	225,964
1944	273,556	-	273,556
1943	344,931	937	345,868
1942	445,782	77,480	523,262
1941	465,854	191,191	657,045
1940	533,486	157,099	690,585

¹Cases of various sizes converted to the equivalent of 48 4-2/3-ounce cans per case (14 pounds net).

In 1949, a total of 452,918 standard cases (48 4-2/3-ounce cans) of canned oysters were packed in the United States with a value of \$6,525,207 to the processors—an increase of 95,838 cases (27 percent) as compared with the previous year.

Over half of the 1949 pack of oysters was canned in Louisiana (39 percent) and Mississippi (16 percent). The Atlantic and Gulf States accounted for 75 percent of the pack, and the States of Washington and Oregon for the remaining 25 percent.

Oysters were canned in 24 plants in Louisiana; 19 in Mississippi; 8 in Washington; 4 in

South Carolina; 2 plants each in North Carolina, Alabama, and Oregon; and 1 plant in Georgia.

The average price per standard case increased from \$13.38 in 1948 to \$14.41 in 1949.



Pack of California Sardines, 1949

Table 1 - Pack of California Sardines by Style of Pack, and by Size of Can and Case, 1949 (Quantity in Standard and Actual Cases, and Value to the Cannery)								
Style of Pack	Quantity Std. Cases ¹	Total Value	Avg. Price Per Std. Case ¹	Size of Can and Case	Quantity Actual Cases	Total Value	Avg. Price Per Actual Case	
Natural, without sauce or oil	1,885,880	7,003,531	4.59	1 pound cans: 15 ounces net, tall (48 cans)	1,517,609	6,283,540	4.15	
In tomato sauce	1,986,444	12,745,787	6.42	15 " " , oval (48 cans)	1,853,346	9,906,371	5.99	
In mustard sauce	217,915	1,156,569	5.31	1/2 pound cans: 8 ounces net, tall (48 cans)	294,866	1,086,997	3.69	
Other ²	38,575	430,918	11.17	8 " " , oblong (48 cans)	287,105	1,361,152	5.10	
				5 ounces net, (100 cans)	480,838	2,477,216	5.69	
				Other sizes converted to 15 ounces net (48 cans)	24,428	235,549	9.64	
Total	3,768,212	\$1,334,825	5.66	Total	4,177,610	\$1,334,825	-	

¹ "Standard cases" represent cases of various sizes converted to 48 No. 1 tall cans (15 ounces net) to the case.

² Includes special packs of sardines (pilchards) in soybean oil; in olive oil, and in olive oil and tomato sauce; fillets without sauce or oil and fillets in soybean oil.

Table 2 - Pack of California Sardines (Pilchards) 1940-49
(Quantity in Standard Cases¹ and Value to the Cannery)

Year	Quantity Std. Cases ¹	Total Value	Avg. Price Per Std. Case ¹
1949	3,768,212	21,334,825	5.66
1948	2,654,149	21,892,893	8.25
1947	1,652,592	16,538,375	10.01
1946	2,977,170	19,895,649	6.68
1945	3,765,981	15,346,472	4.08
1944	3,650,919	15,225,919	4.17
1943	3,354,697	14,352,359	4.28
1942	3,744,624	15,509,964	4.14
1941	5,007,154	18,091,873	3.61
1940	2,945,882	8,975,257	3.05

¹ Cases of various sizes converted to 48 No. 1 tall cans (15 ounces net) to the case.

ceived the previous year. Sardines (pilchards) were canned in 49 plants in California.

The average price per standard case continued to decline. The record price per standard case was received by the cannery in 1947 (\$10.01 per case). In 1948, the price declined to \$8.25 per standard case; and in 1949, the price dropped to \$5.66 per standard case. This was even below the 1946 price of \$6.68 (see table 2).



California's sardine (pilchard) pack in 1949 was 3,768,212 standard cases, valued at \$21,334,825 to the cannery—an increase of 42 percent in quantity, but a decline of 3 percent in value as compared with 1948 (see table 1). While the 1949 pack was the second largest in history, it was 1,238,942 cases less than the record 1941 production; but the value of the 1949 pack was only 3 percent below the record \$21,892,893 received the previous year.

U.S. Pack of Canned Shad, 1949

Canned shad produced in 1949 amounted to 13,835 standard cases, valued at \$106,194 to the canners (see table 1)—a decline of 6 percent in quantity and 22 percent in value as compared with the previous year. This does not include a small production of canned smoked shad, which since 1946 has been canned only by a single firm.

Table 1 - Pack of Canned Shad^{1/} by States in Standard Cases^{2/} and by Size of Can & Case in Actual Cases, 1949
(Quantity and Value to the Canners)

State	Quantity Std. Cases ^{2/}	Total Value \$	Avg. Price Per Std. Case \$	Size of Can and Case	Quantity Actual Cases	Total Value \$	Avg. Price Per Case \$
Maryland ^{3/}	851	10,000	11.75	15 ounces net (48 cans)	13,331	98,090	7.36
Washington, Oregon and California ..	12,984	96,194	7.41	Other sizes converted to standard cases ^{2/} ..	504	8,104	16.08
Total	13,835	106,194	7.68	Total	13,835	106,194	-

^{1/}Does not include production of canned smoked shad.

^{2/}Cases of various sizes converted to the equivalent of 48 No. 1 tall cans per case, each can containing 15 ounces of fish.

^{3/}The production in Maryland was principally fillets.

Nearly 94 percent of the pack was canned on the Pacific Coast, principally in the Columbia River District of Oregon. While the Pacific Coast pack of 12,984 cases was slightly larger than in the previous year, the Atlantic Coast pack of 851 cases was the smallest since 1940. Shad were canned in 5 plants in Oregon, 2 in Maryland, and 1 each in Washington and California.

Table 2 - Pack of Canned Shad^{1/}, 1940-49 (Quantity in Standard Cases^{2/} and Value to Canners)

Year	Pacific Coast			Atlantic Coast			Total		
	Quantity Std. Cases ^{2/}	Total Value \$	Avg. Price Per Std. Case ^{2/} \$	Quantity Std. Cases ^{2/}	Total Value \$	Avg. Price Per Std. Case ^{2/} \$	Quantity Std. Cases ^{2/}	Total Value \$	Avg. Price Per Std. Case ^{2/} \$
1949	12,984	96,194	7.41	851	10,000	11.75	13,835	106,194	7.68
1948	11,908	110,196	9.25	2,865	26,655	9.30	14,773	136,851	9.26
1947	18,808	169,777	9.03	3,910	29,496	7.54	22,718	199,273	8.77
1946	3/	3/	-	24,403	224,387	9.20	24,403	224,387	9.20
1945	4,983	110,210	22.11	17,345	182,554	10.52	22,328	292,764	13.11
1944	17,820	103,003	5.78	23,548	243,239	10.33	41,368	346,242	8.37
1943	14,171	78,762	5.56	3,860	48,618	12.60	18,031	127,380	7.06
1942	28,693	156,077	5.44	7,764	80,123	10.32	36,457	236,200	6.48
1941	3,637	16,221	4.46	926	14,226	15.36	4,563	30,447	6.67
1940	18,421	54,108	2.94	234	2,999	12.82	18,655	57,107	3.06

^{1/}Does not include the production of smoked shad.

^{2/}Cases of various sizes converted to the equivalent of 48 No. 1 tall cans per case, each can containing 15 ounces of fish.

^{3/}A small pack of shad on the Pacific Coast has been included with the Atlantic Coast production.

The canners' average price per standard case in 1949 was \$7.68, compared with \$9.26 in 1948. During the past ten years, the highest average price was \$13.11 in 1945 as compared with the lowest of \$3.06 in 1940 (see table 2).



Wholesale and Retail Prices

WHOLESALE PRICES, JUNE 1950: The fish and shellfish (fresh, frozen, and canned) wholesale index for June was 95.0 percent of the 1947 average—0.5 percent higher than the previous month, but almost the same as for June 1949 (see table 1), according to the Bureau of Labor Statistics of the Department of Labor.

Of the various subgroup indexes for June, the frozen processed fish and shellfish subgroup was the only one that declined (by 1.9 percent) as compared with May; however, it was still 12.2 percent higher than for June 1949. June frozen fillet prices included in this subgroup were all lower than in May; on the other hand, frozen shrimp prices remained at the same level. However, prices of each item included in this subgroup were higher than the corresponding month a year ago.

Table 1 - Wholesale Average Prices and Indexes of Fish and Shellfish, June 1950, with Comparative Data									
GROUP, SUBGROUP, AND ITEM SPECIFICATION	POINT OF PRICING	UNIT	AVERAGE PRICES (\$)			INDEXES (1947 = 100)			
			June 1950	May 1950	June 1949	June 1950	May 1950	June 1949	
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)									
Fresh and Frozen Fishery Products:						99.7	99.1	88.7	
Drawn, Dressed, or Whole Finfish:						106.0	104.8	91.7	
Haddock, large, offshore, drawn, fresh	Boston	lb.	.10	.09	.07	103.6	97.2	72.5	
Halibut, Western, 20/30 lbs., dressed, fresh or frozen	New York City	"	.36	.33	.32	104.9	97.2	91.9	
Salmon, king, lge. & med., dressed, fresh or frozen	" " "	"	.47	.52	.46	114.9	126.3	113.9	
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.39	.46	.48	86.2	101.5	106.0	
Whitefish, mostly Lake Superior, drawn (dressed), fresh	"	"	.39	.41	.34	112.7	119.1	97.5	
Whitefish, mostly Lake Erie pound net, round, fresh	New York City	"	.56	.60	.48	123.5	113.9	109.4	
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	" " "	"	.32	.29	.26	74.1	67.7	69.0	
Processed, Fresh (Fish and Shellfish):						90.1	89.4	84.0	
Fillets, haddock, small, skins on, 20-lb. tins	Boston	lb.	.27	.29	.22	96.6	104.7	80.4	
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York City	"	.63	.62	.56	88.7	88.9	83.3	
Oysters, shucked, standards	Norfolk area	gal.	3.69	3.50	3.50	90.8	86.2	86.2	
Processed, Frozen (Fish and Shellfish):						101.4	103.4	90.4	
Fillets: Flounder (yellowtail), skinless, 10-lb. boxes	Boston	lb.	.34	.35	.24	109.7	113.0	75.9	
Haddock, small, 10-lb. cello-pack	"	"	.25	.26	.20	114.8	119.8	86.2	
Rosefish, 10-lb. cello-pack	Gloucester	"	.19	.20	.19	94.0	96.3	92.5	
Shrimp, lge. (26-30 count), 5- to 10-lb. boxes	Chicago	"	.68	.68	.65	98.4	98.4	92.3	
Canned Fishery Products:						87.9	87.6	104.2	
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case	Seattle	case	15.08	14.68	17.73	98.3	95.0	115.6	
Tuna, light meat, solid pack, No. 2 (7 oz.), 48 cans per case	Los Angeles	"	14.84	14.25	15.75	92.7	92.7	102.5	
Sardines (Pichard's), California, tomato pack, No. 1 oval (15 oz.), 48 cans per case	"	"	5.50	5.50	7.50	61.5	61.5	83.9	
Sardines, Maine, keyless oil, No. 2 drawn (3 1/2 oz.), 100 cans per case	New York City	"	6.20	7.00	8.75	60.8	68.6	85.8	

The largest increase occurred in the drawn, dressed, or whole finfish subgroup (June prices in this subgroup were 1.1 percent higher than for the previous month). Prices of fresh drawn haddock, halibut, whitefish at New York City, and yellow pike rose during June, while prices of fresh salmon, whitefish at Chicago, and lake trout dropped substantially. Compared with June 1949, prices for all the items in this subgroup were still 15.6 percent higher this June.

From May to June, fresh processed fish and shellfish prices rose 0.8 percent and they were 7.3 percent above those which prevailed in June 1949. There was a drop in fresh haddock fillet prices which was compensated by an increase in the prices of shucked oysters during June. Prices quoted for each item in this subgroup during June this year were still higher than those that were quoted in June a year earlier.

The canned fish index for June was 87.9 percent of the 1947 average—0.3 percent above May this year, but still 15.6 percent below June 1949. A drop in the prices for canned Maine sardines during June was compensated by an increase in the prices of canned pink salmon. Canned tuna and California sardines were quoted at the same prices as prevailed in May. However, prices of each item in this subgroup continued to be lower than those quoted in June 1949.

RETAIL PRICES, JUNE 1950: Retail food prices rose substantially for the second consecutive month, and on June 15 the retail food index was 204.6 percent of the 1935-39 average (see table 2). This was slightly higher than a year earlier and 41 percent above June 1946. Between mid-May and mid-June, food prices advanced in all of the 56 cities surveyed, with increases of 3.5 percent or greater reported in Philadelphia, Boston, Baltimore, Cleveland, and Buffalo.

For all fish and shellfish (fresh, frozen, and canned), the June 15 retail index was 295.3 percent of the 1935-39 average—0.7 percent higher than on May 15, but 5.5 percent lower than on June 15, 1949. The increase in retail prices of all fish and shellfish which occurred from mid-May to mid-June this year was only slightly greater than that which occurred in the wholesale prices for this same group.

Table 2 - Retail Price Indexes for Foods and Fishery Products,
June 15, 1950, with Comparative Data

Item	Base	I N D E X E S		
		June 15, 1950	May 15, 1950	June 15, 1949
All foods	1935-39 = 100	204.6	200.3	204.3
All fish and shellfish (fresh, frozen, and canned)	do	295.3	293.2	312.6
Fresh and frozen fish	1938-39 = 100	274.1	270.6	252.2
Canned salmon: pink	do	325.3	327.8	454.4

Fresh and frozen fishery products prices at retail rose 1.3 percent from mid-May to mid-June this year, and on June 15 were 8.7 percent higher than on the same date a year earlier.

Canned pink salmon retailed at 0.8 percent less in mid-June than in mid-May, and prices on June 15 were 28.4 percent below June 15, 1949.



"S.S. PACIFIC EXPLORER"

Part IV—Personnel and the Movement of Materials

The operators of tuna-receiving ships should plan to develop ultimately a truly high seas fishery. The receiving ship and its allied fishing fleet should be capable of long-range operations, be able to effectively transfer tuna and supplies on the high seas, and be developed with the idea of having eventual freedom from the regulations of foreign governments. Since there is reason to believe that the tunas are distributed over much of the tropical waters of the Pacific Ocean, thought should be given to the development of methods for eventually utilizing these areas in addition to the more efficient utilization of the tuna fishery off the Americas.

--Fishery Leaflet 326



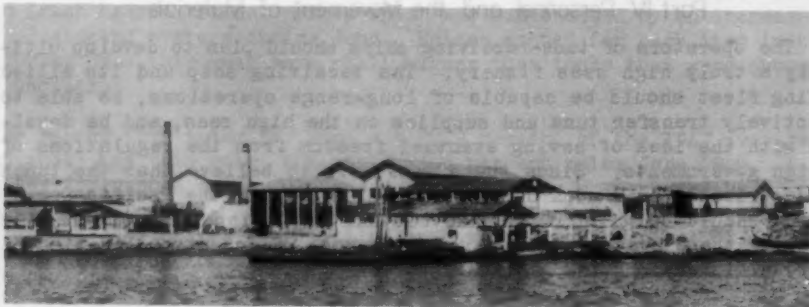
Angola (Portuguese West Africa)

FISHERY SURVEY: **Conclusions:** An Economic Cooperation Administration survey of the fisheries of Angola between Luanda and Baia dos Tigres, with specific reference to fish meal and oil, was made between April 19 and May 3, 1950. These are the conclusions of the survey:

1. There is every reason to believe that the fish supply off the coast of the southern part of Angola can support an expanded industry.
2. Expansion should include added production of dried salted fish for African consumption as well as additional fish meal and oil.
3. Consideration should also be given to increasing the supply of fresh fish for human consumption in the northern portion of the Colony. Inland cities in Angola and the Belgian Congo are inadequately supplied with fresh fish.



DRYING RACKS FOR SALTED FISH AT BAIA FARTA.



LARGEST FISH CANNING PLANT IN ANGOLA AT PRAIA AMELIA.

4. Use of ECA funds for the mechanization of new and existing fish-meal and oil facilities and certain marine equipment is justified. Use of ECA funds for the purchase of fishing boats, tugs, or barges, is not warranted.
5. Encouragement should not be given to increased production of canned fish until research has established the availability of canning types of fish, and markets are assured.

Nature of the Survey: Fourteen localities and about 50 different fish-processing plants or factories were visited—including facilities for production of dried salted fish, fish meal and oil, and canned fish.

Purpose of the Survey: The reason for the survey was the "Application for Financing by the ECA Reserve Fund for the Development of Overseas Territories" submitted to ECA/Portugal in February 1950 as an English translation of a summary of the project. The "application" as submitted was not sufficiently detailed to permit full analysis.

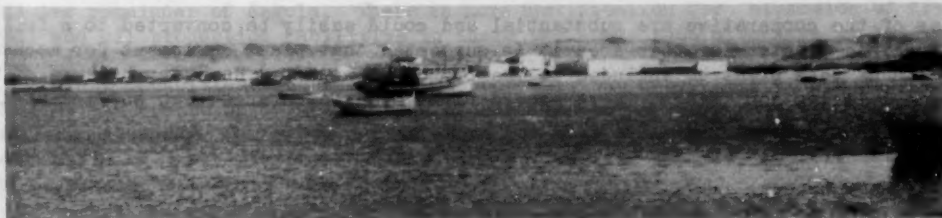
Project Proposal: The project envisioned the installation of new and additional fish-reduction plants and facilities in six localities in that portion of



NATIVES PLACING SALTED FISH ON DRYING RACKS AT CASO.

Angola south of Lobita. Exception should be taken to the sites proposed for some of the new facilities. In selecting the new plant locations, the southern coastal area was divided into six approximately equal zones with each new installation to service about 20 miles of coast line. The proper types of fish are known to be available in some areas, and it was assumed they would be similarly plentiful in all areas. Whether or not this is true is not known. It is believed inadvisable to expend funds for extensive installations in several areas until fishery research has established that fish are abundant and that fishing can be continued on a sustained annual basis without seriously depleting the supply.

Discussion of Specific Installations: Three of the new installations seem to have been proposed without appropriate consideration of existing fish process-



HARBOR AT BAIÁ FARTA SHOWING ANGOLAN FISHING BOATS. IN THE CENTER IS A NEW FISH CANNING PLANT.

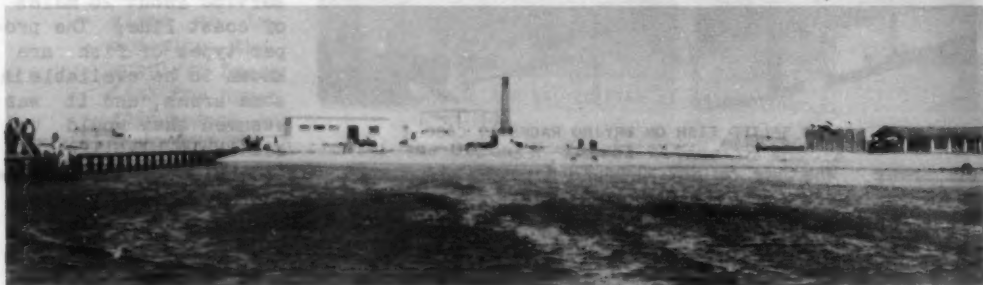
ing plants or of other facilities which would be required. The three proposed sites which fall into this category are Baia Farta, Lucira, and Baia dos Tigres.

In the Baia Farta area there are already two well equipped, fully mechanized fish-reduction plants and a number of poorly equipped hand-operated, sun-drying plants. It was admitted that sufficient fish for full operation is not obtained, and that if reasonable commercial credit were available, facilities for the catching of fish and for the production of fish meal and oil would be increased by the industry without governmental assistance. In this area, particularly, it is suggested that encouragement in the form of reasonable credit be made available to the commercial operators already established in the business of producing fish meal and oil.



UNLOADING TUNNY AND SHARK AT THE CANNING PLANT IN BAIÁ FARTA.

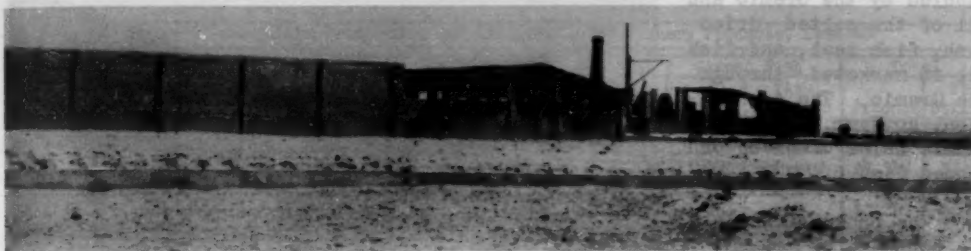
Baia dos Tigres is reported to be in the vicinity of most abundant supplies of the oil- and meal-producing fish. However, there are other factors which make it seem inadvisable to expand reduction facilities at this point. There already is a fishermen's cooperative in existence and apparently functioning satisfactorily. However, the fish-reduction plant operated by the cooperative is of a primitive type which cannot utilize a large volume of fish and cannot be expected to produce the highest quality product. The buildings and shore facilities



TWO FISH REDUCTION PLANTS AT BAIÁ DOS TIGRES. THE ONE IN THE CENTER IS UNDER COOPERATIVE OWNERSHIP WHILE THE ONE ON THE RIGHT IS INDEPENDENTLY OWNED.

ties of the cooperative are substantial and could easily be converted to a fully mechanized plant. For this area it is suggested that plant equipment for mechanization of this plant be included in the proposed project. However, because of the austere living conditions, there should first be an assurance that sufficient fishermen will be available.

Conditions at Lucira were reported to be similar to Baia dos Tigres. This proposed location admittedly was selected as the most logical in providing a



PRIVATELY-OWNED FISH REDUCTION PLANT AT BAIÁ DOS TIGRES. NOTE WALL SURROUNDING FISH-MEAL DRYING YARD.

chain of plants from Lobita to the southern boundary of the colony and was without regard to known availability of the necessary varieties of fish or adequacy of shore facilities.

In the preliminary report of the survey it was suggested that consideration might well be given to the Portuguese proposal to expand fish-processing facilities in Equimina--Baia dos Elefantes, Mossamedes, and Porto Alexandre.



AN ANGOLAN FISH CUTTING SHED, AND MEAL AND OIL PLANT AT EQUIMINA.

The most plentiful supply of fish known to exist in Angola is in the area from Mossamedes south to Baia dos Tigres, with about 45 percent of the catch taken at Porto Alexandre alone. There are nearly as many fish-processing plants (salting and drying, meal and oil, and canning) in these two port areas as in all the remainder of Angola. There is more justification for expansion of fish meal and oil production facilities in these two areas than elsewhere in Angola.

Plant Capacities: In the project proposal, the capacities of the new installations are to be 10 metric tons of raw fish per hour in each plant except at Porto Alexandre which would be 20 tons per hour. These plant capacities seem reasonable on the basis of known and prospective fish supplies. There seems to be no reason to suggest other capacities.

Fish Production: In Angola, the fishery is divided into three zones or areas each of which has its own "Gremio" or Association. Minor financing of fishermen is handled by the Gremio and all of the salted dried fish, fish meal, and fish oil is marketed through the Gremio. The Association, however, does not handle sales of fresh or canned fish.



PART OF A FISH-HANDLING PLANT AT BAIÁ DOS ELEFANTES. PRODUCTION IS PRINCIPALLY SALTED AND DRIED FISH, AND SOME MEAL AND OIL.

The production in the northern or Luanda district has been fairly stable since 1944 with most of the fish going for human consumption as fresh fish. There is no reported use of fish as dried salted, or for meal and oil. In the central or Lobito district and southern or Mossamedes district, total fish landings were fairly stable in 1944-46, dropped materially in 1947, and reached new highs in 1948. The relatively small catch in 1947 in the Lobito and Mossamedes districts is attributed to a longer than usual rainy season which has always been a period of light fishing by the traps and short-range fishing equipment. The arrival of Portuguese purse seiners in 1948 accounts, in large part, for the substantial increase in catch.

Disposition of the Production: There should be no particular difficulty in disposing of the fish meal produced by the new facilities. There are programmed



ANGOLAN FISHING VILLAGE NEAR BENGUELA. NOTE EVAPORATION BEDS FOR THE PRODUCTION OF SALT FROM SEA WATER.

plans to increase the production of meat animals throughout Europe and Africa, and high quality fish meal is a prime source of animal protein desirable in the feeding of meat animals. There is a proposal at the present time to enlarge the meat production in Angola which might well absorb most, if not all, of the feeding-quality fish meal to be produced by the proposed new plants. Fish meal is currently exported primarily to Belgian Congo, Mozambique, Germany, the Netherlands, Denmark and the United States. Most of these are expected to be continuing markets but

with increasing production of fish meal and other animal protein in many countries, prices for fish meal in Europe and the United States cannot be expected to remain

at current high levels. The African colonies should, however, continue to be favorable markets.

Table 1 - Angola's Production and Utilization of Fishery Products, 1944-48

Year	Fresh Fish		Dried Fish		Fish Meal & Fish Oil		Canned Fish		Total	
	Product	Utilized	Product ^{1/}	Utilized	Meal	Oil	Product	Utilized	Product	Utilized
	(In Metric Tons)									
1948	4,592	4,592	23,161	57,932	11,698	1,279	58,480	1,156	2,312	41,876
1947	4,500	4,500	13,263	33,137	6,590	700	32,950	1,095	2,119	26,148
1946	4,500	4,500	16,068	40,170	7,413	797	41,065	1,403	2,806	30,181
1945	4,500	4,500	16,822	42,054	7,750	821	38,750	1,763	3,526	31,656
1944	4,500	4,500	14,810	37,025	8,817	925	44,085	648	1,295	23,773

^{1/}Converted from bales to metric tons. One bale equals 66 pounds.

Fish oil is in very ample world supply and prices are not favorable. However, a new oil-processing plant is under construction in Portugal through which it is anticipated that fish oil from Angola will be made suitable for human food use. Currently fish oil is of lower value in Angola than fuel oil and is burned for fuel in most fish-processing plants having oil-burning equipment.

Table 2 - Angola's Fish Meal and Oil Production Facilities, 1948

District	Mechanized Factories	Other ^{1/} Facilities
Luanda	0	1
Porto Amboim	0	2
Benguela	3	36
Equimina)	1	11
Baia dos Elefantes)		
Lucira	0	6
Mossamedes	1 ^{2/}	7
Porto Alexandre ...	1	8
Bia dos Tigres	0	2

^{1/}All "workshops" and other fish meal and oil production facilities without mechanical equipment.

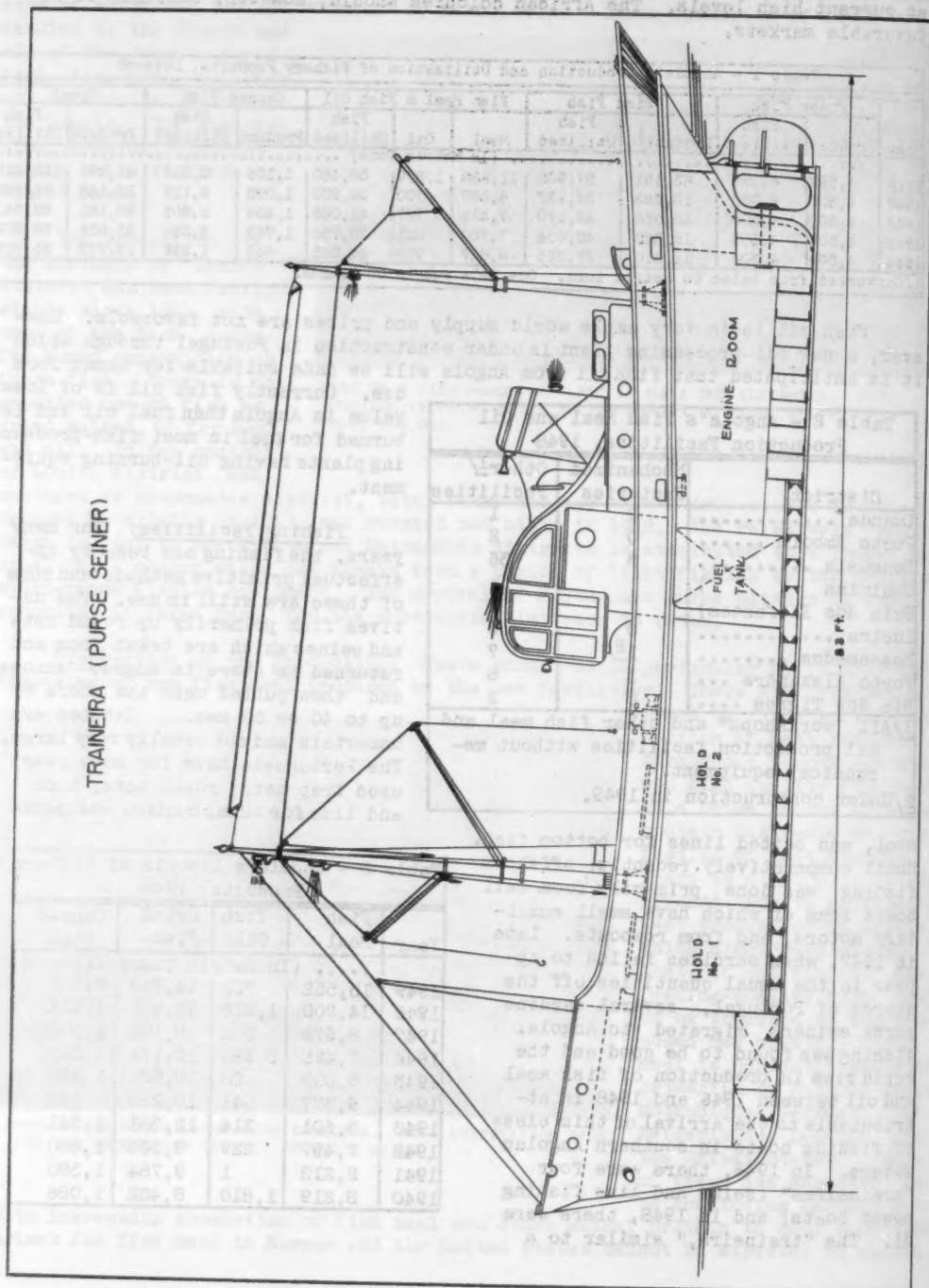
^{2/}Under construction in 1949.

Fishing Facilities: For many years, the fishing has been by ineffectual primitive methods and some of these are still in use. The natives fish primarily by round nets and seines which are taken from and returned to shore in dugout canoes and then pulled onto the shore by up to 40 or 50 men. Catches are uncertain and not usually very large. The Portuguese have for many years used trap nets, round nets, hook and line for tuna, bonito, and mack-

erel, and baited lines for bottom fish. Until comparatively recently, offshore fishing was done primarily from sail boats some of which have small auxiliary motors, and from rowboats. Late in 1947, when sardines failed to appear in the usual quantities off the shores of Portugal, several sardine purse seiners migrated to Angola. Fishing was found to be good and the rapid rise in production of fish meal and oil between 1946 and 1948 is attributable to the arrival of this class of fishing boats in southern Angolan waters. In 1946, there were four "traineiras" (seine and line fishing power boats) and in 1948, there were 31. The "traineira," similar to a

Table 3 - Angola's Exports of Fishery Products, 1949

Year	Fish Meal	Fish Oil	Dried Fish	Canned Fish
	(In Metric Tons)			
1949	13,552	708	14,730	2,127
1948	14,200	1,056	13,832	1,326
1947	6,675	352	8,104	1,301
1946	7,429	3,990	10,174	2,341
1945	6,553	20	10,521	1,460
1944	9,397	541	10,226	793
1943	5,601	314	12,381	1,541
1942	7,497	529	8,600	1,680
1941	2,213	1	9,784	1,390
1940	8,219	1,810	8,482	1,086



United States purse seiner, is about 70 to 85 ft. in length, and has a cargo capacity of about 20 to 25 metric tons. Ice or other refrigeration is used only in connection with fish for human consumption as fresh fish.

Table 4 - Angolan Fishing Gear Operated in 1946 and 1948		
Type of Gear	1948	1946
Armacoes (trap nets).....	84	75
Traineiras (purse seines and line fishing).....	31	4
Rasteiras (dragners).....	236	220
Sacadas (round nets).....	92	74
Lines	1,401	1,396

The "traineira," powered with gasoline or Diesel engines of about 100 h.p., seems to be well suited for Angolan operations. At most of the fishing ports only small boats with shallow draft can discharge the cargo without excessive handling and fishing boats larger than those proposed would be inadvisable until deep-water unloading can be provided.

Management of the Proposed Reduction

Plants: According to the project proposal it is planned that the new plants be financed, managed, and operated by a State-sponsored cooperative of the fisherman and the small commercial fishery plant operators in each area. This seems to be a reasonable proposal, and it was found that without exception already established commercial operators approved of the new ventures. The larger operators were interested because they foresaw an opportunity to dispose of the fish landed which might,



UNLOADING TUNNY (A MACKEREL) AND SIMILAR FISH FROM AN ANGOLAN FISHING BOAT AT PRAIA AMELIA.



SORTING FISH FOR SALTING AND DRYING AS THEY ARE UNLOADED AT PRAIA AMELIA.

be in excess of their own plant capacities. In effect, the new reduction plants would supplement rather than compete with existing facilities except, it is believed, in the Lobita-Baia Farta area.

Financial Requirements: The project proposal as submitted envisioned a total expenditure (for six meal and oil plants, fishing boats, barges, and tugs) of 104,004,000 Escudos (\$3,714,000 U. S.). Of this amount, the U. S. dollar (ECA funds) expenditure was estimated to be:

Machinery, in general

(not including transportation or installation) ..	\$ 820,000
Iron (probably steel oil tanks)	3,000
Fish unloading machinery	35,000
Fishing boats and tugs	1,567,000
Iron for barges (steel)	15,000
Cotton (for nets)	60,000
Total	\$2,500,000

There is no justification for the purchase of fishing boats or tugs in the United States, or elsewhere, for dollars. The Portuguese are expert fishing-boat



TYPICAL ANGOLAN SMALL-SAIL FISHING BOATS AT BAIÁ DOS TIGRES.

builders and will build boats better suited to their own needs and at much lower cost than for similar ones built in the United States. The expenditure of dollars for fish-oil tanks and for barges is also seriously questioned.

Stickwater Concentrate: In the wet-reduction process, certain soluble proteins and vitamins are carried out in the stickwater or press-liquor. The concentrated soluble proteins that can be recovered from the stickwater has a ready sale at advantageous prices. There are, however, difficulties in transportation of the concentrate to market and the initial investment of the processing equipment is rather high. It is suggested the Portuguese might investigate the feasibility of marketing the product and might consider the installation of one concentration unit, probably at Mossamedes, to which the stickwater from other areas could be delivered by barge.

Fish Varieties Processed: There are several of the oily, small fish claimed to be abundant or at least plentiful off the coast of southern Angola. The most



FISH MEAL SUN-DRYING YARD AT CASO (MOSSAMEDES BAY). NATIVES ARE TURNING THE COOKED FISH.

abundant, known locally as *savelha*, is a herring-like fish and of little value except for meal and oil.

There are several other varieties reportedly in ample supply which are important for salting and drying as well as for meal and oil. This group includes the mackerel-type fish known locally as *cavalla*; the smaller specimens of skipjack known in Angola as *tunny*; the "sardines" which are pilchard-like fish and known locally as *sardinha*.

A number of other varieties are caught and many are used for fish-meal production. During various seasons of the year, a vast number of different varieties are caught, particularly in traps, and many are of little value for other than reduction. However, the inclusion of these miscellaneous "trash" fish in the production of fish meal results in an irregular production frequently of low quality. One of the objectives of the proposed project is to permit selective fishing through the use of mobile equipment and thus obtain only those fish which are best suited for the production of meal and oil.

Labor and Supervision: Trained fishermen and operators of special machinery are not expected to be available from the natives in Angola but such persons are readily obtainable in Portugal. One of the project objectives is to encourage the migration of experienced fishermen from over-populated villages in Portugal to the Colony. Presumably, other technicians will be similarly transferred to Angola.

The mechanization of the production of fish meal and oil will relieve the labor situation in Angola where there is now an acute shortage. It requires large crews of natives to handle the fish, operate the presses, and to turn the "guano" (cooked fish spread for drying in the sun).

--Robert W. Tyson, Chief, Special Commodities Branch, Food and Agriculture Division, Economic Cooperation Administration, Washington, D. C.

Bolivia

FISH MARKETING SITUATION:^{1/} Although Bolivia is one of two South American countries with no coastline, its rivers and lakes are said to be well stocked with fish which are caught and consumed by residents along the shores. Rainbow, lake trout, and "boga," are fished from Lake Titicaca and sold fresh in the La Paz markets. This is the only commercial fishing in Bolivia, according to Robert O. Smith, U. S. Fish and Wildlife Service representative, who made a survey of South American markets for United States fishery products.

Fresh salt-water fish, such as, corbina, sharks, and mullet are brought by rail from both Chile and Peru. Possibly because of transportation costs and perishability, fresh fish costs the consumer about double the price of meat on a poundage basis.

The dollar value of 1949 Bolivian imports of processed fishery products was around \$200,000. Imports in 1950 may equal those for 1949, but in view of the 1/THIS IS THE SIXTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. MILTON J. LINDNER AND ROBERT O. SMITH, UNITED STATES FISH AND WILDLIFE SERVICE REPRESENTATIVES, WERE IN SOUTH AMERICA IN JUNE INVESTIGATING MARKETS. IN CONNECTION WITH A SURVEY SPONSORED COOPERATIVELY WITH THE U. S. DEPARTMENT OF AGRICULTURE'S OFFICE OF FOREIGN AGRICULTURAL RELATIONS, MORE DETAILED REPORTS WILL BE ISSUED AT A LATER DATE AS FOREIGN MARKET CIRCULARS AND WILL BE AVAILABLE FROM THE BRANCH OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. THE ANNOUNCEMENT OF THIS STUDY APPEARED IN COMMERCIAL FISHERIES REVIEW, JUNE 1950, P. 18, AND THE FIRST REPORT IN THIS SERIES ON THE ARGENTINE REPUBLIC ON PP. 33-4 OF THE SAME ISSUE; THE SECOND ON THE NETHERLANDS WEST INDIES APPEARED IN JULY 1950, PP. 46-7; AND OTHERS APPEAR IN THIS ISSUE AS FOLLOWS: THE THIRD ON URUGUAY, P. 61; THE FOURTH ON PARAGUAY, P. 52; THE FIFTH ON BRAZIL, P. 41; THE SEVENTH ON SURINAM, P. 57; THE EIGHTH ON VENEZUELA, P. 62; AND THE NINTH ON CHILE, P. 43.

trade agreement with Spain, most purchases probably will be made in that country since it offers a wide variety of fishery products (canned, pastes, and dried) of the kind most popular in Bolivia.

The chief countries supplying fishery products to Bolivia prior to 1950 were Chile and Peru--fresh fish; United States--sardines, salmon, caviar, and fish paste; Spain and Portugal--anchovies. Sardines were also imported from Brazil and Canada; salmon from England and Canada; caviar from Norway and England; and fish paste and other canned varieties from England, Norway, and Canada.

Bolivia has concluded trade agreements with Spain, France, Belgium, and by the end of this calendar year probably will have a similar agreement with Italy.

Spain is able to offer a wide variety of fishery products including sardines, anchovies, and tuna. Importers expect to fill increasing percentages of their canned fish requirements from Spain, as both price and quality are advantageous. It is improbable that Belgium will enter this trade, but both France and Italy can be expected to do so. The prospect for importation of United States fishery products is dim, except insofar as salmon is concerned, and possibly some supplies purchased by mining companies for their commissaries.



TYPICAL BALSA BOAT ON LAKE TITICACA, BOLIVIA.

Throughout South America there seems to be continued interest in sardines packed in tomato sauce (Portola type) in 15-ounce flat ovals, but the extent of the market could not be gauged.

A study of the composition and distribution of the Bolivian population (estimated at 3.8 million in 1946), exportable products, the need for foreign exchange, and the necessity for importing basic food products and materials,

indicates that the volume and value of imported processed fishery products must remain small and will fluctuate according to the world prices for minerals.

Of the total population, 53 percent are Indians, most of whom are farmers, herders, or miners who supply their own requirements except for a negligible amount of goods obtained by barter or sale of their products. They have little purchasing power or demand for imported products. About 32 percent is composed of Cholos, of mixed Spanish and Indian blood, who have practically no demand for imported fishery products. The white population comprises 15 percent of the total, but are almost 100 percent of the buyers of imported "luxury" items.



Brazil

FISH MARKETING SITUATION:^{1/} Imports and foreign exchange in Brazil are under rigid government control, and available dollars are not used for import of canned fishery products, according to information submitted by Milton J. Lindner, U. S. Fish and Wildlife Service representative, who in June this year covered the eastern part of South America in a survey of South American markets for U. S. fishery products.

Dry-salted cod has been the major Brazilian fishery import--about 44 million pounds a year or about 95 percent of total fishery imports. Prior to the war, Newfoundland was the principal supplier of this product; but since 1948, through a coffee exchange arrangement, Norway has taken over this business.

In prewar years, imports of fishery products (other than dried cod) averaged about 2.6 million pounds annually--about 62 percent came from Portugal. The United States supplied only about 1 percent of the prewar sardine imports--chiefly California sardines in tomato sauce. Canned salmon was the only other significant United States export to Brazil. A few cans of red salmon were observed in some retail stores, but at prohibitive prices--more than \$3.50 for a one-pound tall can (U. S. currency equivalent).

Because of import restrictions, less than 300 pounds of sardines entered Brazil in 1949. Local production is now supplying the Brazilian market, but much of the pack contains scales and is decidedly objectionable to the consumers.

Very little canned fish have been imported into Brazil during the past year. In June this year there was no indication of an immediate change in these conditions in the near future.

Except for a sanitary inspection, no other special requirements are necessary on imported fishery products.

Brazilian imports and foreign exchange are controlled by two offices in the Bank of Brazil. Imports from hard-currency areas are permitted only for products appearing on a list published by the Bank. No fishery products are included on the list. There is a growing barter trade in which certain items are imported in exchange for exports of slow-moving Brazilian products. Barter deals with hard-currency areas are generally limited to products appearing on the list.

In Rio de Janeiro fish prices in June were high compared with meat and other staple articles of diet. Better grades of fresh round fish retailed for the same price as filet mignon--about 50 cents per pound. Cheaper types of fish retailed for more than the cheaper cuts of meat. Norwegian boned cod with skin on was retailing for 53 cents per pound.

Brazil is not an exporter of processed fishery products. In 1949, exports totaled only about 700 pounds.

^{1/} THIS IS THE FIFTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. SEE FOOTNOTE ON P. 39 OF THIS ISSUE.



Canada

SEEKS EXPANSION OF DOMESTIC CONSUMPTION TO MAKE UP LOSS IN EXPORT FISHERIES TRADE: Confronted with contracting sales in certain traditional export markets, the Canadian fisheries industry, with the support of the Government, has taken a number of positive steps during the past year to encourage increased domestic consumption of fishery products, reports a May 19 American Embassy dispatch from Ottawa. In addition, research improvement, and inspection and quality controls are being considered.

Consideration has been given to methods to assist the industry in protecting the fisheries trade with sterling areas and other countries confronted by exchange difficulties. With a plan to aid exports of Newfoundland salt cod to European countries during the current year, the first step in this direction has been taken.

The annual meeting of the Fisheries Council of Canada held in March strongly stressed the need for developing an increased domestic market, particularly as the export outlook was not encouraging. Pointing out that consumption of fish in Canada is less than 10 pounds per capita, compared with a meat consumption of approximately 144 pounds per capita, one speaker pointed out that the Canadian market should present an attractive challenge and incentive to the industry.

The annual production of the Canadian fishing industry is now in the neighborhood of \$175,000,000. Due to exchange difficulties and other factors affecting many of Canada's traditional markets, exports have been shrinking. Shipments last year from Canada (including Newfoundland) amounted to \$106,200,000 as compared with \$120,400,000 in 1948, a decline of 12 percent. The United States is Canada's leading market, accounting for 63 percent of total exports last year with purchases aggregating \$67,200,000. Purchases by the United Kingdom and British colonies (financed by ECA funds) increased appreciably last year from \$9,200,000 to \$15,700,000, but European purchases were off more than 50 percent, totaling approximately \$10,000,000, compared to \$21,600,000 in the previous year.

No improvement is expected in export sales in the current year, although it is hoped to maintain last year's level of shipments. Special emphasis in the meantime will be placed on a program to expand home sales.

ARRANGES SALE OF NEWFOUNDLAND SALT COD IN EUROPE: Financial arrangements with the United Kingdom, Spain, Portugal, Italy, and Greece for the sale of some of this year's production of Newfoundland salt cod in Europe were announced by the Canadian Fisheries Minister on July 6, 1950. It is expected that about C\$6,000,000 (approximately U.S. \$5,460,000) worth of cod will be sold, according to a July 7 American Embassy dispatch from Ottawa.

The fish will go to Spain, Portugal, Italy, and Greece under a one-year continuance of a system set up before Confederation to enable Newfoundland to sell in these soft-currency countries. These countries will pay for the fish in sterling, which will be applied against Newfoundland's debt to the United Kingdom, which Canada took over last year. The Federal Government will reimburse the Newfoundland fishermen in Canadian dollars. In addition, the Italian Government has agreed to set aside C\$500,000 for the purchase of cured cod from Gaspé, Quebec. This is a high-grade product which has been going to Italy for some years, especially to the Milan area.

The Canadian Government recently announced that the Fisheries Price Support Board would buy 1949 salt cod still in the hands of fishermen, but not that portion of the catch held by processors and distributors.

Ceylon

STATUS OF FISHERIES, 1949: There were complaints about the inability of the fishing industries of Ceylon to produce enough fish for local consumption at fair prices throughout 1949.

A group of Danish experts, who came to the Island in 1949 to propose ways of rehabilitating the fishing industry, reportedly suggested drastic changes which have met with opposition from fishermen, according to a May 12 American consular report from Colombo.



Chile

CURRENT FISH MARKETING SITUATION:^{1/} With a coastline of 2,600 miles, it is not surprising that Chile should produce and consume a wide variety of fishery products, according to information submitted by Robert O. Smith, U. S. Fish and Wildlife Service representative, who in June this year made a study of markets for U. S. fishery products in South America.

Fish and shellfish production in 1949, according to the most recent figures, totaled about 168 million pounds. Fish is increasing in importance as a competitor of meat in Chile. A steady decrease in meat consumption has taken place since 1945. The production index for meat products dropped from 129.9 (1936-38 equals 100) in 1945 to 97.4 percent in 1949. On the other hand, the production index for fishery products climbed from 136.6 in 1945 to 224.1 percent in 1949.

In foreign trade, Chile has a net balance of exports for both fresh and processed fishery products. In the course of ten years (1939-49), the ratio of imports to exports has changed from 5.5 to 1 to 1 to 22.5, respectively. Obviously, a part of the decline in imports must be attributed to shortages of foreign exchange, but the large increase in exports is evidence of the development of the Chilean fishery industries. Chilean exports of canned fish may be expected to increase considerably within the next few years, though 1950 costs of production are high and canners are not in a position to capture any significant part of the world market for tuna or bonito. A decline in Chilean fresh fish exports during 1949 was due to a sudden disappearance of swordfish from the coastal waters of the country.

The leading fishery products imported into Chile in 1949 were canned sardines, salmon, and miscellaneous canned fish and shellfish.

Chile's foreign exchange budget for 1950 does not include any provision for importing fishery products.

^{1/} THIS IS THE NINTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. SEE FOOTNOTE ON P. 39 OF THIS ISSUE.



German Federal Republic

GOVERNMENT REGULATIONS AFFECTING THE FISHERIES: Although the equalization fund tax (Ausgleichsabgabe) ^{1/} expired on March 31, 1950, payments continued to be made from the equalization funds to support fish prices, according to a May 19 American consular dispatch from Bremerhaven. About \$119,000 was made available to support fish prices at the minimum level of 18 pfennig per kilogram (approximately 2 cents per pound), and about \$476,000 was made available to processors and wholesalers in the form of short-term credits.

A law providing a coal subsidy of \$3.57 per metric ton for high-seas fishing vessels (retroactive to July 1, 1949) was approved on March 20 this year.

Work continued on the new German customs tariff which is expected to provide for an ad-valorem duty on fish imports in place of the present prohibitive specific duty. However, the new tariff rates probably will not be made public until after the September tariff discussions at Torquay, England.

^{1/} SEE COMMERCIAL FISHERIES REVIEW, MARCH 1950, P. 51.



Greenland

DEVELOPMENT OF THE FISHERIES: As early as 1905 a number of citizens applied to the Danish State for permission to carry on private business in Greenland, consisting among other things of fishing and the preparation of fishery products, according to an article in the March 1950 issue of Konserves, a Danish canning periodical. However, not until almost half a century later did freezing of fish and fishery products become a reality. Apart from a limited admittance to four natural ports, Greenland has but now been opened to private Danish business. Legislation is now being prepared to reform the whole administrative and economic system of Greenland.

Frozen and Salted Fish: Det Grønlandske Fiskeri-Kompagni was founded in February 1948 with a share capital of 2 million Danish kroner (approximately \$416,000). In the course of two years, this company has built a fishing and freezing station at Tovkussak, situated between Godthaab and Sukkertoppen on the West Coast. Long-distance fishing has been carried on from this station with ten small motorboats and with a fishing and freezing vessel of 300 metric tons (the Greenland).

The Greenland from June to September 1949 produced, with a crew of 26 men, 294 metric tons of wet-salted cod, 58 tons of quick-frozen cod fillets, 10.6 tons of frozen halibut, and also liver oil. The vessel is equipped with two contact freezers with a capacity of 6 metric tons per 24 hours, and a cold-storage room in the hold.

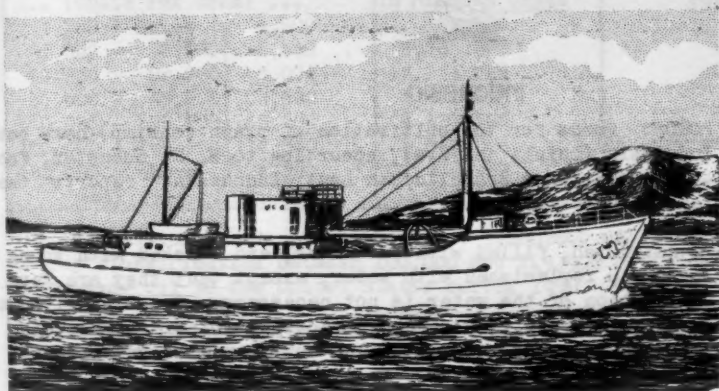
In addition, production at the land station in the summer of 1949 amounted to 177 metric tons of wet-salted cod, 73 tons of quick-frozen cod fillets, and 18.6 tons of frozen halibut. The land station has a plate freezer with a capacity of 10 tons per 24 hours, and two cold-storage rooms with a temperature of -35° C. (-31° F.) and -20° C. (-4° F.), respectively, and a capacity of 250 metric tons of fillets. There are piers and buildings with rooms for cutting of fillets and salting, workshops, and dining and dwelling units for 100 men.

Although the present fishing season is from June through September, it is expected that operations can be expanded over most of the year.

Fillets are packed in cellophane-lined, paraffined cartons and frozen in 6½-pound blocks, but 1950 production will be packed in smaller units, which are believed to be more readily marketable.

Splitting and salting of cod and cutting of fillets require considerable labor. The yield of the finished product represents about 30 percent of the round fish in each instance and the amount of labor is about the same for an equal weight of salted or filleted cod. Since the available labor can be used more effectively in fishing operations, it probably will not be long before the first splitting and filleting machines will be used.

Byproducts: Plans are underway for installation of a fish-meal plant together with an oil recovery unit, at Tovkussak. In addition to herring and rosefish, which



THE GREENLAND, A FISHING AND FREEZING VESSEL OF 300 METRIC TONS OPERATING WITH 10 SMALL MOTORBOATS OUT OF TOVKUSSAK, GREENLAND.

contain considerable oil, other oily fish include sharks and capelin. The latter two are present in appreciable quantities. In addition, the fishery for rosefish probably can be expanded. Consideration has also been given to an artificial drying plant for salt cod.

Outlook for 1950:

Fishing will be greatly increased during the 1950 season as a number of big boats will be fishing from the station.

In order to facilitate the work, the station will be equipped with mechanical conveyers.

Emphasis has been placed on freezing fishery products since the transportation of fresh Greenland fish to the United States or Europe is precluded by the long distances involved. Freezing has made it possible to preserve herring for bait, and halibut which otherwise are worthless. The same is true of wolffish which is of no value when salted, but makes a frozen fillet equal to cod in appearance and taste. Salting, on the other hand, has disadvantages in that in the winter it must be carried on in heated rooms. As a result, the handling of cod has had to cease during the winter months. Filleting, however, has a significant advantage in this respect since it can be carried on throughout the winter.

Although frozen fillets are somewhat more costly to produce than salted cod, because of the freezing and packing operations, the prices for these fillets are higher than salt fish, and the difference is enough to overcome the increased production costs of frozen fillets. Also, the market for salted fish is limited and the purchasers are among the less wealthy nations; whereas, Greenland can figure on the United States, for one, as a market for prime quick-frozen cod fillets in attractive consumer packages.

Shrimp Fishery:^{1/} Since there is a large market for frozen headless shrimp in the United States, Greenland exports of shrimp could make it the next most important article to cod. The shrimp fishing areas supplying Holsteinborg and Narssak are minor compared to the shrimp grounds in Disco Bay discovered in 1948 and 1949 by Paul Hansen, a fishery biologist for the Greenland Commission who has conducted research in Greenland waters for almost a generation. He has characterized these resources as among the richest in the world.

These newly-discovered shrimp grounds are about 25 nautical miles long and about 4 to 6 nautical miles broad at a depth of 400 meters (218 fathoms). The bottom is smooth clay without stones. In addition, shrimp are found outside these grounds in a large area where they cannot be fished. Thus, the shrimp are naturally conserved, since eventual overfishing on the areas with a smooth bottom will be compensated for by the migration of shrimp from the areas with a rough bottom.

1/ SEE COMMERCIAL FISHERIES REVIEW, MARCH 1950, PP. 54-5.



Indonesia

RAISING PRAWN IN PONDS: Ponds for the cultivation of prawn (shrimp) have been used for some time in Indonesia (mainly in Java), according to W. H. Schuster, Food Culture Specialist of the Laboratorium Penyelidikan Laut, Indonesia, reports the June 1950 Australian Fisheries Newsletter.

Shallow ponds are constructed, filled with sea water, and stocked with young prawn. Ponds are not regularly replenished with water, except that they are kept filled. Artificial fertilization of the water is not necessary. Occasionally, mangrove leaves or nearby grass are added as a general practice. Other than that, prawn are fed unwanted fish meat, worms, and the like, but they also get natural food from the pond itself.

The species of prawn cultivated in Indonesia are of the same family as those caught on the Australian coast. In Javanese culture ponds, prawn grow to about four inches long in as short a time as three months. Yield per acre is about 350 pounds annually.



Japan

PROPOSED PACIFIC FISHERIES AGREEMENT: A Pacific Fisheries Agreement (tentative plan) has been formulated by the Fisheries Committee of the House of Councilors of the Japanese Diet, a July 21 American consular dispatch from Tokyo reports. The purpose of the agreement is to promote the propagation and protection of marine resources in the Pacific water areas north of 30° south latitude and establish a rational foundation for the ocean fishery in the same areas so as to secure a rational development thereof to the highest degree, and further to secure the co-operation among the coastal states with regard to the management of the said fishery.

The proposed agreement has been discussed with representatives of the Japanese fishing industry and the Diet and has received general approval.

The Fisheries Committee of the House of Councillors is also working on proposals for specific fisheries agreements with the United States and Korea.

ESTIMATED PRODUCTION AND EXPORTS OF VITAMIN-A LIVER OILS FOR 1950: Of the estimated total of 32,350,000 million units (4,658,163 pounds) of vitamin-A fish oil to be produced in 1950, the Japanese Ministry of International Trade and Industry expects only about 5 percent of the first three low-potency categories (see Table 1) to be consumed in the domestic market, and the remainder to be exported to the United States, a July 15 American consular dispatch from Tokyo reports. During the first five months this year, Japan exported to the United States 20,001,537 million units (2,877,732 pounds) of vitamin-A fish oil (Table 2).

Table 1 - Estimated 1950 Japanese Production of Vitamin A Fish Oil

Potency Classification	Average Potency (U.S.P.)	Quantity	Percentage of Total in Each Potency Classification	Quantity
... (Units Per Gram) ...		In Million Units	Percent	Lbs.
4,900 & below	4,900	185,510	0.6	82,500
5,000 - 9,900	6,520	6,785,809	21.0	2,292,180
10,000 - 29,900	15,000	12,624,789	39.0	1,851,344
30,000 - 49,900	33,500	2,463,838	7.6	161,819
50,000 - 99,900	63,000	4,687,565	14.5	163,902
100,000 - 149,900	112,300	5,268,056	16.3	103,184
150,000 & above	234,000	334,433	1.0	3,234
Total		32,350,000	100	4,658,163

In addition, Japan plans to export 3,000,000 million units (mostly of the potency classification between 100,000 and 149,900 units per gram) of vitamin-A whale-liver oil to the United States during 1950. Of this quantity, 2,415,621

Table 2 - Japanese Exports of Vitamin A Fish Oil to The United States - Jan.-May 1950

Potency Classification	Average Potency (U.S.P.)	Quantity	Percentage of Total in Each Potency Classification	Quantity
.... (Units Per Gram)		In Million Units	Percent	Lbs.
4,900 & below	4,900	111,420	0.6	49,500
5,000 - 9,900	6,520	4,192,632	21.0	1,413,720
10,000 - 29,900	15,000	7,808,888	39.0	1,147,212
30,000 - 49,900	33,500	1,525,354	7.6	100,188
50,000 - 99,900	63,000	2,897,038	14.5	101,376
100,000 - 149,900	112,300	3,255,256	16.3	63,756
150,000 & above	234,000	210,949	1.0	1,980
Total		20,001,537	100	2,877,732

million units have already been exported during the first five months this year. The availability of the remaining quantity, approximately 580,000 million units, depends on the whaling catch during the last seven months of 1950.

An official of a leading Japanese vitamin-oil company stated that the industry is endeavoring to produce at least 35,000,000 million units of vitamin-A liver oil (including fish and whale-liver oil) in 1950 but, because of the alleged current monetary stringency, the industry would find it difficult to produce more than this quantity even to meet a larger export demand. He stated that financial considerations were forcing manufacturers to liquidate their stocks as soon as possible to meet their current obligations, so they are not in a position to bargain for higher prices. He believed that in view of the bargaining efforts

of United States buyers, taking advantage of the intense competition among Japanese manufacturers, a floor price system on fish-liver oils was desirable as a means of realizing reasonable profits for the industry in the future.

Industry officials maintain that it would be unfair for competitors in the United States to think that Japanese manufacturers are resorting to dumping because of their comparatively low prices. The cost of production, they allege, is much lower in Japan because the fish-liver oil is a byproduct of the fisheries industry which utilizes the entire fish, whereas in the United States, shark and other varieties of fish are caught largely for the purpose of extracting the liver and most of the remainder of the carcass is discarded, making costs of procurement much higher.

SURVEY OF FRESH-WATER AND SHELLFISH FISHERIES: A survey of Japan's fresh-water and shellfish fisheries has been completed by Donald L. McKernan, Visiting Expert Consultant, who is on leave from his position as Director of Research of the Oregon Fish Commission and who has been on a special assignment with the Natural Resources Section of SCAP since March, according to the latter agency's Weekly Summary of June 25. A study of Japanese aquiculture, including carp culture in rice paddies, oyster and clam culture, and "nori" (seaweed) culture, was made to determine ways in which these fisheries can be further developed to provide much-needed protein for the Japanese people.

The conclusions of the survey were as follows:

There appear to be two practical methods of increasing the annual production of the inland fisheries of Japan--increasing the carp culture on inland waters and inaugurating fisheries management programs to protect and rehabilitate the dwindling natural population, thus increasing the productivity of the natural fisheries resources.

Carp Culture: Three principal sources of carp production in Japan are natural waters, which during the war yielded about 11 million pounds each year, culture ponds and hatcheries, which produced about 22 million pounds, and rice paddy culture, which produced about 6 million pounds each year.

All three methods of carp production can be utilized to a much greater extent to increase Japan's food supply. The natural waters show reduced annual yield as evidence of overfishing. Many irrigation reservoirs, ponds, and larger impoundments behind dams can be used for carp culture, thus increasing the yield to a great extent. However, the largest increase in Japan's fresh-water fisheries can come from the maximum utilization of rice paddies for carp culture.

Of about 7,000,000 acres of rice paddies in Japan, only about 45,000 acres or 0.64 percent, are now being used for carp production. About 5,000,000 pounds of carp are being produced in rice paddies at the present time. According to experiments, between 125 and 200 pounds of carp per acre can be produced annually in the rice paddies without artificially feeding the fish. Experiments show that in most instances the rice harvest is increased by raising carp in the paddies. Carp culture in rice paddies gives many farm areas a three-crop farm yield--wheat, carp, and rice from the same land. Complete utilization of the rice paddies for carp cultivation would give a potential yield of over one billion pounds of carp a year. If only a substantial part of the 7,000,000 acres of rice paddies were utilized,

several hundreds of millions of pounds of carp could be produced easily. As the carp do not require additional feeding, the increase in rice paddy culture can be accomplished without any great expenditure for food.

Food for the carp in hatcheries, culture ponds, and some rice paddies has been scarce and expensive until recently. Research by government scientists should uncover additional sources of carp food, such as, fish offal, and greater use of small marine crustaceans.

Trout Culture: The propagation by government hatcheries of rainbow and brook trout introduced from the United States is both inefficient and costly. This propagation, carried on for years, has failed to establish rainbow or brook trout to any large extent in the natural waters of Japan. Trout hatcheries operated by the government are not producing quantities of trout commensurate with the cost. Mortality is often between 90 and 100 percent during the first year and probably averages about 75 percent. With more than 30 government hatcheries operating throughout Japan in addition to many private hatcheries, the harvest of trout is only around one million pounds annually. At a cost of about 47 cents per pound, trout are far too expensive for the average Japanese family. Greatly increasing the production of rainbow and brook trout in Japan at the present time does not seem probable.

Ayu Fishery: The "ayu," a trout-like anadromous fish, is one of the most highly valued of all Japanese fish. Formerly it migrated up practically all of the rivers in Honshu, Kyushu, and even southern Hokkaido. The landings of this species are not recorded, but undoubtedly the catch reaches several million pounds each year. Because of recent dam construction on many of the important rivers in Japan, the ayu have declined in abundance and are now being artificially stocked above the dams. The fish used for this stocking come from Lake Biwa or from the estuaries of rivers containing



MANY EEL CULTURE PONDS, SUCH AS THIS ONE AT LAKE HAMANA, SHIZUOKA PREFECTURE, JAPAN, EXISTED IN JAPAN BEFORE WORLD WAR II.

ayu runs. The populations appear in danger of further reduction because of this large-scale capture and transfer of young ayu. No great increase in ayu production is likely to occur because of the probable reduction of stream habitat by further construction of large, impassable dams.

Eel Culture and Fishery: The eel also is highly valued in Japan. Peak production, in 1942, amounted to 20 million pounds. Present production, a considerable percent of which is by private eel culturists, is much less than during the peak war year. The large dam construction program is further reducing the population of eels by blocking their migrations to fresh water. In view of further contemplated dam construction, it is doubtful if the landings of eels can be increased to any great extent. Probably only through great effort can the production be increased and maintained at anywhere near the 1942 level.

Production from Natural Waters: The inland waters (lakes and streams) yield great quantities of fish to the fishermen, but indications are that these fisheries have been exploited too intensively and are not producing as much annually as in former years. Available data show that management programs on these inland waters could increase to a large extent the fresh-water fisheries landings in Japan.

Dam Construction: Large development programs on many of the major rivers of Japan will probably destroy the migratory fish, such as salmon, trout, ayu, and eel; at present no adequate methods are known to prevent the destruction of these anadromous fisheries resources where high dams are contemplated near the mouths of the rivers. Dam proponents and fisheries technicians have conducted no cooperative studies to plan the river development programs so as to alleviate the damage to fisheries. With proper planning and operation of the dams, the lakes formed behind the dams probably can be used to increase fish production instead of destroying the fisheries. Many species, such as carp, Prussian carp, and various cyprinoids would do very well in these impoundments if the proper environmental conditions could be maintained for them.

Shellfish and Edible Seaweed: Oyster, clam, and "mori" (edible seaweed) culture are more highly developed in Japan than anywhere else in the world. The fisheries produced about 286 million pounds annually just prior to the war, and although production declined excessively immediately following the Japanese surrender, it is increasing again and should surpass this mark within a few years. The already intense cultivation of these species precludes any great increases in production over the prewar level but, with a good research program to develop more efficient techniques in cultivating these bay fisheries, production undoubtedly can be increased significantly.

JAPANESE OVERSEAS



Mexico

MEXICAN COASTAL TOWNS ASK FOR U. S.-MEXICAN SHRIMP-FISHERY TREATY: The chambers of commerce of the Mexican coastal towns along the Gulf of Mexico have petitioned the Ministries of Marine and Foreign Relations to negotiate a fishery treaty with the United States, particularly with respect to shrimp, according to an item

appearing in the Mexican newspaper Excelsior of July 1 and as reported by the American Embassy at Mexico City.

The account states that the merchants and fishermen believe that the Mexican fishing zone should have a limit of nine nautical miles from the coast rather than the three miles recognized by the United States.

WEST COAST SHRIMP FISHERY: There are 13 shrimp plants now in existence on the west coast of Mexico with a daily freezing capacity of 147½ metric tons (Table 1), according to an April 17 American Embassy report from Mexico, D. F.

Table 1 - Shrimp Plants on Mexican West Coast - Location, Number, and Freezing Capacity		
City and State	Plants	Daily Freezing Capacity
	No.	Metric Tons
Guaymas, Sonora	6	67½
Mazatlan, Sinaloa	2	30
La Reforma, Sinaloa	1	10
El Dorado, Sinaloa	1	5
Topolobampo, Sinaloa	1	20
El Golfo, Sonora	1	5
Santa Rosalia, Baja California	1	10
Total	13	147½

Table 2 - Monthly Shrimp Production and Number of Trips at Guaymas, Sonora				
Month	1948-49 Season		1947-48 Season	
	Production Lbs.	Trips No.	Production Lbs.	Trips No.
Oct.	1,145,540	237	926,316	295
Nov.	2,067,558	239	842,560	280
Dec.	1,813,935	222	930,912	267
Jan.	1,447,972	150	749,333	191
Feb.	1,318,953	155	1,307,328	129
Mar.	1,082,759	183	866,620	126
Apr.	627,598	143	395,591	148
May	331,342	120	213,543	133
June	232,243	154	47,175	107
July	21,078	65	28,576	94
Total.	10,088,978	1,668	6,307,954	1,770

Two other plants, having a capacity of ten metric tons of shrimp, are projected and will be built in the immediate future at Mazatlan.

At present, the West Coast shrimp fishing industry is largely centered at Guaymas (Table 2). However, it appears that there are shrimp areas along the Mexican west coast south of Mazatlan, and it seems certain that that port will rise in importance and soon will be equalling, or exceeding, Guaymas as a shrimp center.



British North Borneo

STATUS OF THE FISHERIES, 1949: A commercial venture, approved by the Government, will be started in 1950 whereby eight Chinese junks from Hong Kong, about 60 to 70 feet each in length, will carry on fishing activities along the west coast of North Borneo. If successful, more boats of this type may be brought in, according to a report from the United States Foreign Service.

The principal fisheries products exported during 1949 were salt fish, dried prawn and prawn dust, shark fins, and trochus shells.

Norway

NORDIC FISHERY CONFERENCE: Iceland's extension of its territorial waters as they affect that country's fisheries and the condition of the fisheries export market were the subjects of two of the most important discussions at the Nordic Fishery Conference held at Lysekil, Sweden, in June this year, a June 21 American Embassy dispatch from Oslo reports.

The speech given at the Conference by the Icelandic representative, H. G. Andersen was reported upon by Verdens Gang, a Norwegian newspaper, by its correspondent Asbjørn Barlaup. He reported:

"It is today a public secret that Iceland has extended its fishery limits and that the new provisions are so rigorous that there is a danger that Norwegian herring fishermen must consider themselves excluded from Icelandic waters. Norwegian fishermen can no longer process their catch in shelter of the Icelandic skerries. If they wish to continue their work, they must process and salt the fish on the open ocean. It is easy to understand what this will mean to the large Norwegian fisheries in Icelandic waters. Naturally, none of the Norwegian delegates to the conference will participate in any discussion of this peculiar question."

Barlaup said the most remarkable thing about H. G. Andersen's speech was that he completely left out the official Icelandic argument for the new fishery limits, namely, that the provision was dictated by consideration of fish conservation. Otherwise he found the speech a well-formulated argument for the step taken by Iceland.

Barlaup gave a detailed report of the Swedish protest against the extension of the Icelandic fishery limits. He further tried to explain the real reasons for this measure, drawing the conclusion that Iceland probably aimed at reducing the competition of the Norwegian herring products on the international markets.

The condition of the fisheries export market was discussed by a Danish delegate at the Conference. The correspondent pointed out that Norway has reached a rather strange position in the inter-Nordic fish market. "While Norway has removed all restrictions on the import of fish from Sweden and Denmark, the Swedes permit imports only according to a preceding analysis of the demand, and Denmark requires a license for imports--contrary to the spirit and provisions of the Marshall Plan."

NORWEGIAN-FRENCH TRADE AGREEMENT: Trade delegations representing Norway and France signed a supplementary commodity agreement at Oslo on July 6, 1950, to be effective from that date to June 30, 1951.

Among the principal commodities listed for export from Norway to France are fishery and allied products. No fisheries products are included in the exports from France to Norway. There seems to be a strong opinion that in comparison with the two previous agreements, the present agreement will result in a reduction of Norwegian exports to and imports from France, a July 19 American Embassy dispatch from Oslo reports.

The main products which are to be exported from Norway to France are fresh and frozen fish, fresh or frozen herring, salted herring, smoked herring, raw sealskins, fish and canned fish for the colonies, and fish oils.

Norwegian Exports of Fishery and Allied Products to France ^{1/}			
Commodities	Quantity	Value	
		In Kroner	In U.S.\$
Raw sealskins	-	1,000,000 ^{2/}	140,000
Fresh or frozen fish, including salmon	-	6,500,000	910,000
Fresh or frozen herring	-	1,000,000	140,000
Salted herring	-	1,300,000 ^{3/}	182,000
Smoked herring	-	1,200,000 ^{4/}	168,000
Canned fish	-	500,000 ^{3/}	70,000
Fish and canned fish (for colonies)	-	2,000,000	280,000
Pearl essence	-	25,000	3,500
Hardened whale oil (for North Africa)	100 M.T.	-	-
Industrial fish oil	1,250 "	-	-
Cod-liver oil	200 "	-	-
Veterinary fish oil	150 "	-	-
Cod roe (for North Africa)	300 bbls.	-	-
Fish hooks	-	1,500,000	210,000
^{1/} The Norwegian Government will permit the export to France of these commodities to the quantities or values mentioned; import licenses will be made out by the French Government for the same quantities or values. ^{2/} Free import. ^{3/} Part for North Africa. ^{4/} For North Africa and overseas territories.			



Paraguay

FISH MARKETING SITUATION:^{1/} Fresh fish and imported canned fishery products are scarce and considered a luxury in Paraguay because the people are traditional beef eaters, as in Argentina and Uruguay, according to Milton J. Lindner, U. S. Fish and Wildlife Service representative, who is making a survey of South American markets for United States fishery products.

Paraguay produces no canned fish and very little fresh fish. Paraguay has imported only small quantities of these products, but practically none from the United States. Prior to the war, imports were largely from Norway, Spain and Portugal, and consisted principally of sardines and tuna in olive oil, and dry cod. During the war, these items were replaced by dried fish from Brazil and canned fish from Argentina. From 1945 to 1947, there were decreasing importations from Argentina and Brazil and increasing importations from Europe. Since 1948, imports have declined rapidly and only very small amounts are now entering the country.

There are no labeling or packaging restrictions on imported fishery products, but they must undergo a sanitary inspection.

Dollars are very scarce and exchange control makes it impossible to import fishery products from the United States. Whatever dollars become available are required for essential equipment and repair parts. Lack of exchange has caused an almost complete stoppage of all fishery imports and there appears to be no indication of any immediate improvement in this condition.

^{1/} THIS IS THE FOURTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. ALSO SEE FOOTNOTE ON P. 39 OF THIS ISSUE.

The cost of living index in Paraguay was 759 in April 1950, and over 800 in June (1938 equals 100). Retail prices on many staple goods are fixed by the government, although it is impossible to obtain most of them at the government price. Higher prices must be paid, and prices are still rising.

Beef is relatively cheap, however, when compared with the prices charged for imported canned fish--most of which are packed in Argentina. The best qualities of beef retail for about 10 cents per pound (U. S. currency equivalent). The cheaper cuts retail for about 4 cents.

Argentine "tuna" (actually a mackerel), was observed in the retail markets for about \$1.20 for a 7-ounce can. A 13½-ounce tall can of Argentine "caballa" (mackerel in tomato sauce) was selling for about 80 cents. One store had recently obtained a shipment of canned Chilean sardines and tuna in peanut and sunflower oil. Sardines in 15½-ounce round flat cans retailed for about 94 cents each; tuna in a 7-ounce can retailed for about 81 cents. Prices of imported canned fish have risen so high they are priced out of the market. The cheapest heads-on gutted fresh fish were selling for about 12 cents per pound, and the best, about 50 cents.



Republic of the Philippines

IMPORT CONTROL LAW AFFECTS FISHERY PRODUCTS IMPORTS: A law (Republic Act 426, Import Control Law) providing for the establishment of an Import Control Board, which no later than 60 days from the date of approval shall fix import quotas for import commodities included in the Act, was approved by the Philippine Government on May 18 and signed by the President on May 22. This Act brings all imports under the control of the Import Control Board and reduces the imports of certain specific commodities (including fishery and allied products). Reduced quotas will be based on certain percentages (depending upon the classification) of the average value of each imported commodity for the base years 1946, 1947, and 1948.

The Import Control Board is responsible for the establishment of policies governing the fixing and allocation of quotas for any commodity pursuant to the provisions of the Act; the promulgation of necessary rules and regulations for enforcement and implementation of the Act; carrying out the provisions of the Act.

Direct administration of the Act is placed in the hands of an Import Control Administration. This unit will grant quota allocations among importers; receive and act on applications for quota allocations and import licenses and issue the corresponding quota-allocation import licenses; implement and carry out all policies and resolutions established by the Import Control Board.

The following sections of the Act will probably be of interest to prospective shippers of fishery products to the Philippines:

"Section 5. Any person desiring to import any article, goods or commodities into the Philippines shall file an application for a corresponding quota allocation and license with the Import Control Administration. For old importers, the application shall be executed under oath and shall contain, among others, their name, address, nationality, stock on hand of the goods applied, the amount of their importation in

the years 1946, 1947, and 1948 of the articles, goods or commodities applied for; and if a new importer, his application shall contain a statement of his actual financial resources to finance the importation of the goods applied for.

"Section 6. No person, corporation or association shall import any article, goods or commodity into the Philippines without a proper import license issued for said purpose in accordance with this Act. Any importation or order to import any articles, goods or commodities under control under the old import control law between April 30, 1950, and the date of the approval of this Act shall be considered illegal unless such order or importation was duly approved by the old Import Control Board."

Section 7 of the Act divides imports into four classifications, and cuts imports under each classification specific percentages depending on the classification:

(1) Prime imports--commodities of prime necessity and not sufficiently available locally. Shall be reduced by not more than 40 percent. No fishery or allied products are listed under this category.

(2) Essential imports--commodities which, though not of prime necessity, are necessary for the health and material well-being of the people. Shall be reduced by not less than 40 percent nor more than 60 percent. Fish nets are included among those commodities listed under this classification.

(3) Non-essential imports--commodities not necessary for the health and material well-being of the people, but whose consumption is concomitant with the rise of their standard of living. Shall be reduced by not less than 60 percent nor more than 80 percent. The following fishery products are included among those commodities listed under this classification:

Fish and Fish Products

Fresh:

Haddock and halibut
Other fresh fish
Shellfish
Dried, smoked, salted or cured
(except salmon and sardines)
Anchovies
Beche-de-mer (trepang)
Codfish
Cuttlefish (squid)
Haddock
Herring
Shark fins
Shrimp
Other shellfish
Other dried fish

Canned:

Abalone
Anchovies
Crabs and crab meat
Cuttlefish (squid)
Clams
Herring
Mackerel
Oysters
Roe
Shrimp
Tuna and bonito
Sauces, fish
Canned shellfish
All other canned fish
(includes salmon and sardines)

(4) Luxury imports--commodities intended primarily for ostentation or pleasure. Shall be reduced by not less than 80 percent nor more than 90 percent. Imports of these commodities are to be discouraged completely. Included among those commodities listed under this classification are:

Animal fats and oil, edible

All others (fish and whale oils are probably included here)

Animal products, inedible

Shell manufactures

Shells and manufactures

Section 7 also contains the following over-all statement:

"Upon the joint certification by the Secretary of Agriculture and Natural Resources and the Secretary of Commerce and Industry that the domestic supply of certain articles, goods or commodities heretofore imported is sufficient to meet the local demand, the board shall impose the maximum percentage reduction on the import quotas for such articles, goods or commodities, as provided for in this Act. Upon joint certification by the Secretary of Agriculture and Natural Resources and the Secretary of Commerce and Industry that an article or commodity not under control has a sufficient local supply to meet adequately the local demand, and the board upon investigation, is convinced of the necessity of controlling such items to protect local industry or industries, the Import Control Board may place in the control list the said article or commodity. The Import Control Board is hereby authorized to transfer a controlled import item from a lower class to a higher class of import should the board be convinced that the local supply of said commodity warrants said transfer."

Other important sections of the Act are the following:

"Section 9. No item of import not enumerated in the appendices of this Act shall be allowed an import license and exchange cover in excess of its import value (c.i.f.) for the year 1948 except agricultural machineries and equipment and other machinery, materials and equipment for dollar-producing and dollar-saving industries.

"Section 10. For the purpose of fixing the import quota for each article, goods, or commodity, the average annual c.i.f. value thereof for the years 1946, 1947, and 1948 shall be used as basis.

"Section 11. Within 30 days after the Import Control Board as herein provided shall have fixed the import quota for each item of import, any importer desiring to import any such item may file an application with the Commissioner for an allocation of a portion of said import quota. Any ruling or resolution of the Import Control Board as provided in Republic Act numbered 330 to the contrary notwithstanding, the applicants may file their application within 45 days after the approval of this Act."

"Section 12. The portion of the import quotas available for old importers shall be allocated by the Commissioner among them in proportion to the annual average amount of their importation of the articles

1/ R.A. 330 WAS THE ORIGINAL IMPORT CONTROL LAW PASSED IN JUNE 1948.

and on the evidence of the sales tax actually paid by them corresponding to the years 1946, 1947 and 1948. The importers' tax receipts corresponding to any particular article, goods or commodity, being certified under oath, and other documentary evidence shall be used as the principal basis for determining the value of the previous imports of such importers: provided, that no importer shall be allowed more than 30 per centum of the total import quota for any item except when such limitation may, in the opinion of the Import Control Board, be detrimental to public interest. Allocation for importers who imported during a fraction only of the year 1946, 1947 and/or 1948 shall be computed on the basis of the ratio which said fraction of the year bears to the whole year.

"Section 14. The Board shall reserve 30 per centum of the total import quota for any article, goods or commodities for the fiscal year 1950-51, forty per centum for the fiscal year 1951-52, and 50 per centum for the fiscal year 1952-53 in favor of bona fide new importers who did not import such items at any time during the years 1946, 1947 and 1948. To qualify as new importer, one must be a Filipino citizen or a juridical entity at least 60 per centum of whose stock is owned by Filipino citizens. After the total number of new importers has been determined, the portion of the import quota herein reserved shall be allocated proportionately among them on the basis of financial capacity and business standing of the applicant: provided, that said applicant has been duly licensed to engage in a business and industry and has an established place of business, or cooperative associations organized under Commonwealth Act numbered 565 known as the National Cooperative Act.^{2/} Should there be no such new applicants or should the said reserved portion be not entirely covered by new applicants, the said reserved portion of the import quota or any balance thereof shall be allocated among the rest of the importers: provided, further, that nothing contained in this section shall in any way impair or abridge the rights granted to citizens and juridical entities of the United States of America under the Executive Agreement signed on July 4, 1946, between that country and the Republic of the Philippines.^{3/}"

Under the Act, quota allocations of any importer for any particular article are not transferable. Of course, imports are further limited to the amount of foreign exchange available. When the foreign exchange available cannot cover all the applications for importation, the Import Control Board is to reduce proportionately the foreign exchange available among the import-license holders.

The Philippine Cabinet on February 21, 1950, approved the recommendations of a special committee to limit disbursements of dollars for imports in 1950 to actual receipts of dollars from exports, from United States payments and expenditures in the Philippines, and from other inward remittances. Therefore, the amount of dollars available to pay for imports probably will be rather limited.

^{2/} ACT PASSED DURING COMMONWEALTH REGIME, NOVEMBER 1935-JULY 1946.

^{3/} REFERENCE IS TO ARTICLE X-4 OF THE AGREEMENT, WHICH STATES THAT IF THE PRESIDENT OF THE UNITED STATES DETERMINES THAT THE "PHILIPPINE GOVERNMENT IS IN ANY MANNER DISCRIMINATING AGAINST CITIZENS OF THE UNITED STATES OR ANY FORM OF UNITED STATES BUSINESS ENTERPRISE, THEN THE PRESIDENT OF THE UNITED STATES SHALL HAVE THE RIGHT TO SUSPEND THE EFFECTIVENESS OF THE WHOLE OR ANY PORTION OF THIS AGREEMENT."

U. S. Exports of Fishery Products to the Philippines, 1946-48 (Quantity and Value)						
Commodity	1 9 4 6		1 9 4 7		1 9 4 8	
	Net Quantity	Value	Net Quantity	Value	Net Quantity	Value
	lbs.	\$	lbs.	\$	lbs.	\$
Salmon, fresh or frozen (except canned)	17,442	9,380	12,802	5,167	4,500	1,260
Fish, n.e.s., fresh or frozen (except canned)	306,395	68,261	124,198	25,748	21,802	3,729
Oysters, fresh, in shell	250	164	-	-	-	-
" " shucked, frozen, etc.	775	425	4,296	2,915	-	-
Shrimp, fresh, frozen or in ice	1,048	902	900	730	900	874
" " dried	165,313	94,292	29,477	24,139	155,625	153,185
Salmon, sltd., pkld., dry cured	385	190	11,500	1,350	39,450	10,715
Cod, Hake, etc., sltd., pkld., etc.	59,970	23,887	25,564	9,923	112,375	40,503
Fish, sltd., pkld., dry cured, n.e.s.	-	-	70,712	7,625	140,582	19,351
Herring, sltd., pkld., dry cured	1,535	631	34,358	3,870	30,500	4,965
Sardines, sltd., pkld., dry cured	-	-	34,750	5,609	687,504	122,133
Salmon, canned	238,166	295,326	2,782,890	1,007,615	321,875	72,036
Sardines, canned	18,197,511	3,544,385	23,272,497	4,897,686	13,781,248	2,142,433
Cod, Haddock, Hake, etc., canned	61,400	20,406	36,175	11,561	76,400	15,750
Herring, canned	1,533,672	357,696	298,985	35,856	1,330,951	198,519
Fish, n.e.s., canned, except shellfish	26,524,403	5,811,857	16,745,773	3,402,920	996,691	192,787
Shrimp, canned	4,245	4,631	3,115	3,251	-	-
Lobster, canned	160	235	675	1,232	540	737
Crabs and Crab Meat, canned	11,046	10,049	10,404	6,914	11,733	8,773
Clams and Oysters, canned	5,082	3,159	8,941	6,356	34,203	16,339
Shellfish, canned, n.e.s.	9,316,852	1,027,648	12,154,442	1,365,978	25,696,026	3,795,602
Lobsters, fresh	2,302	1,372	4,806	4,068	-	-
Clams, fresh	140	100	-	-	-	-
Fish and Products, edible, n.e.s.	107,056	28,808	272,217	54,175	351,684	84,913
Fish oils, inedible, except medicinal	299,970	69,803	50,000	11,750	-	-

1/ Does not include some minor and allied products, such as, nets. These figures are based on c.i.f. values as reported by the Bureau of the Census, U. S. Department of Commerce. The Republic of the Philippines' import values will be slightly different; however, taking the average value for the years 1946, 1947, and 1948 for any of the items (classified as non-essential imports by the Philippines) as shown in this table and applying the present import restriction for this category (imports shall be reduced by not less than 50 percent nor more than 80 percent), it will be possible to get an approximation of the quantity of each of the items included in the table which will be permitted to enter the Philippines after May 22, 1950, if dollars are available.

Surinam

CURRENT FISH MARKETING SITUATION: 1/ Fish are an important item in the diet in Surinam (Dutch Guiana), according to information submitted by Milton J. Lindner, U. S. Fish and Wildlife Service representative, who in June this year covered the eastern part of South America in a survey of South American markets for U. S. fishery products.

There is some local production of fish with the catch estimated at more than 3.3 million pounds annually. However, the large proportion of the fishery products consumed in Surinam are imported. Much of the local production is salted, dried, or smoke-cooked. There are no fish canneries in the country.

Postwar imports of fishery products are about the same as prewar--about 2 million pounds annually. About 70 percent of the imports have been salted or dry-salted fish, mostly from Canada.

Principal imports of canned fish are California and New Brunswick sardines; Canadian, Netherlands, and Norwegian herring; and United States and Canadian salmon. New Brunswick sardines, which are cheaper than the Maine sardines, command the market. California sardines in tomato sauce are preferred to Dutch herring in tomato as the latter are considered too dry.

1/ THIS IS THE SEVENTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. ALSO SEE FOOTNOTE ON P. 39 OF THIS ISSUE.

Salted herring and dry-salted hake and cod are the principal imports of cured fish. Dry-salted hake, which have less moisture and keep better in the tropical climate, are preferred to cod. Prior to World War II, a few dried shrimp were imported but these have been replaced by a local production of sea-bobs. There seems to be no market for canned tuna or canned shrimp. Canned salmon is considered a luxury but is in heavy demand for feast days.

Scarcity of dollars is not as severe as in some of the other South American countries. Nevertheless, imports of fishery products from the United States are somewhat restricted. Importers generally reserve dollars for products they cannot procure in soft-currency areas. However, this practice has not been observed strictly for fish as there is a definite consumer demand for canned salmon and California sardines.

Although importers indicated that the dollar shortage restricted importation of United States canned fishery products, Surinam imported more fish from the United States in 1949 than in any year since the war. These imports were almost exclusively canned California sardines and canned salmon.

Imports from hard-currency countries are expected to be less during the last half of 1950 than during the first half.

Many items from hard currency areas are regulated on a quota basis; and imports of certain "luxury" items are prohibited. Salted or pickled fish are on the unrestricted list. Salmon, prepared or canned fish and shellfish are on the quota list. Fresh fish or shellfish, canned anchovies, canned smoked salmon or smoked or jellied eel are on the prohibited list of imports from hard-currency areas.

A ceiling price applies on such imported items as dry-salted fish, canned herring, and California sardines, but these are expected to be lifted in July. In June, wholesalers were permitted an 8 percent markup, and retailers, 15 percent.

In Paramaribo, prices of fish, both fresh and canned, compared quite favorably with those of beef. A one-pound tall can of red salmon retailed for 99 cents (U.S. currency equivalent); a one-pound oval of California sardines, 24 cents; and a 3½-ounce flat can of New Brunswick sardines, 13 cents. Beef ranged from 33 to 72 cents, depending on the cut.

No special labeling or sanitary requirements are necessary on imported fishery products.



Trieste

STATUS OF THE FISHERIES, 1949: Much of the fishing industry in the area now known as the Free Territory of Trieste was carried on in the towns of the Istrian Coast which are now located in the Yugoslav Zone. Following the establishment of the Free Territory, control of the property belonging to the Italian fishing companies passed into the hands of the Yugoslavs, but several of the companies continued operations on a limited scale in Trieste, a May 24 American consular dispatch from Trieste reports. Plans were made in 1949 for the building of a large new canning plant in Trieste, but it was finally decided that the existing small canneries were sufficient.

Encouragement of the fishing industry was considered desirable, primarily as a means of insuring a supply of fresh fish for the Zone and for export. A secondary consideration was the employment possibilities which would be created, although it was recognized that most of the fishermen operating out of Trieste were and presumably would continue to be of other than local origin. Another secondary consideration was that some of the small shipyards in the Zone would be given work. Accordingly, an ERP counterpart loan was granted to a cooperative society of fishermen created for the purpose in the amount of 265.5 million lire (equivalent to approximately \$500,000) for the construction of a deep-sea fishing fleet of 12 vessels totaling 645 metric tons. The first of the ships was completed late in the summer of 1949 in time to take advantage of an exceptional run of tuna in these waters.

A fishermen's school is to be opened to train a small number of local youths to take positions in the new modern fishing fleet.

Construction of the deep-sea fleet to supplement the many small craft (which operate only in adjacent waters) was decided upon because of the fact that the richest fishing grounds in the Adriatic were, as a result of the war, under Yugoslav control. Trieste was not included in the fishing agreement negotiated between the Italian and the Yugoslav Governments and local fishermen, when apprehended by the Yugoslavs in what they considered to be their territorial waters, were subjected to severe reprisals. It was accordingly desirable that at least part of the fleet be able to fish further afield.

Another project designed to increase the fishing catch is currently under construction at the mouth of the Timavo River, which runs along the boundary separating the Zone from Italy. Here, three river channels are being deepened to permit mullet to run into the river where they are to be netted. A modern refrigeration plant, barracks for the workers, and other facilities are under construction.

Full effects of the American Military Government program are not expected to be felt until 1950.

In 1949, the total catch of 4,733 metric tons was almost identical to that of 1948 but exceeded the 1938 figure by about 1,350 tons. Of the 1949 catch, 3,698 tons were consumed locally and 1,035 tons were exported, in comparison to 215 tons exported in 1938.



United Kingdom

PLANS FOR AIDING WHITE-FISH INDUSTRY: Plans for helping the British white-fish industry were announced by the Prime Minister in the House of Commons on July 4. A special authority is to be set up with adequate powers to regulate, reorganize, and develop the industry, according to the July 8 issue of The Fishing News, a British fishery periodical. Since it will take some time to get this new body functioning, the Government has decided to use part of the food subsidies to assist the inshore and "middle-water" catchers of white fish for a period of six months." On the basis of current prices, the cost is not expected to exceed £1,700,000 (approximately \$4,760,000).

In the case of catchers using vessels not exceeding 70 ft. in length, the subsidy would be 10d per stone (approximately 86 cents per hundredweight) for white fish, payable under conditions broadly similar to those in force before April 15

this year when price controls were removed. Catchers using vessels over 70 ft. but under 140 ft. in length would not be paid according to the weight of the fish landed, but would receive payment up to a maximum of £12 (\$33.60) per day, and varying according to the gross earnings of each voyage and the number of days per trip. Trawlers over 140 ft. in length would receive no financial aid.

This interim subsidy is designed not only to secure improvement for the white-fish industry until the White-Fish Authority is able to apply long-term remedies, but also to encourage the satchers of prime fish to maintain supplies of the better types of fish. The underlying objective is to insure the continued supply, at reasonable prices, of fish which is a vital element in the Nation's diet.

The new White-Fish Authority will be on a United Kingdom basis. However, it is reported that it would not be possible to introduce legislation before the summer recess of Parliament to create this new Authority which is to be similar to the Herring Industry Board. Composed of independent members, it will have statutory powers, but will work in consultation with the industry.

FOUR LARGE FREEZING AND COLD-STORAGE PLANTS PLANNED BY SCOTTISH HERRING INDUSTRY: One of the most ambitious projects in Scotland's development program is the planned erection of four large freezing and cold-storage plants for herring at Peterhead, Fraserburgh, Buckie, and Wick, according to a June 27 American consular dispatch from Edinburgh.

The establishment of these plants will be the first undertaking of its kind in Scotland and one of the most important in the British Isles. Each plant would be able to freeze and store up to approximately 120,000 pounds of herring a day, and the fishermen could be paid full price for them.

Besides putting the herring industry on a more satisfactory basis, another advantage of the freezing and cold-storage plants is that all surplus herring during gluts could be kept in first-class condition and released to the market when required.

Indicative of the broad scope of the program is the announcement that the plants will cost more than \$2,800,000. It has been suggested that 80 percent of this sum will be advanced by the Scottish Herring Board and 20 percent by private enterprise.

FISHERIES IN THE COLONIAL TERRITORIES: Colonial Governments are realizing more and more that the development of their fisheries, both marine and fresh water, may furnish a valuable additional supply of protein food, and many of them have appropriated funds for such development, according to The Colonial Territories (1949-50), command paper 7958, published June 1, 1950. This document is a summary of developments in the colonies throughout the past year presented to the British Parliament by the Secretary of State for the Colonies.

According to this report, many of the Colonial Governments have appropriated funds for the development of their fisheries, and in some cases these funds are being used for the purchase of powered fishing vessels with United Kingdom skippers to engage in experimental fishing and teach the local fishermen improved catching methods. Methods of fish preservation best suited to local conditions are also being investigated.

Attention is being given to the development of inland fisheries in rivers and lakes such as those in East and Central Africa. As a result of the research at the Fisheries Research Station at Jinja, Uganda, a new fishery has been established in Lake Victoria from which it is hoped to provide fish for the labor force engaged on the Owen Falls hydroelectric scheme. The Fisheries Research Institute at Jinja started

work during the year. Routine work on the stocks of fish was carried out in Lakes Victoria, Edward, and Albert, and in other smaller lakes. Experimental fishing, using new fishing methods, was done, with commercially promising results. Observations are also being made on a fish (*Allantochromis alaudii*) occurring naturally in Lake Victoria which as a mollusk eater may be important in the control of certain human and cattle diseases caused by parasites in which mollusks are intermediate hosts.

Fish farming is being encouraged, and suitable fry for this purpose have been introduced into the West Indies from Malaya and Africa.

A two years' survey of the fisheries of the banks between Seychelles and Mauritius was completed at the end of 1949. The results were encouraging and commercial interests have now taken up large-scale fishing in this area. Besides the exploration of the fishing banks, data have been collected on the feeding and breeding habits of the fish, and on their abundance. This will allow an estimate to be made as to the amount of fish which could be caught on these banks annually without risk of overfishing.

A South African fishing company has been granted a concession for catching crawfish in Tristan da Cunha. The crawfish are taken to South Africa for canning. The industry has been successfully launched and has brought new hope to the islanders who have hitherto been largely supported by gifts from outside.



Uruguay

CURRENT FISH MARKETING SITUATION:^{1/} Consumption of fish in Uruguay is unimportant as compared with that of beef. Uruguayans consume annually about 165 pounds of beef per capita in contrast with about 3½ pounds of fish. This information was submitted by Milton J. Lindner, U. S. Fish and Wildlife Service representative, who in June this year covered the eastern part of South America in a survey of South American markets for U. S. fishery products

Retail prices of fresh fish and beef are set by the government, and both products are subsidized. The price of beef, ranging from 4½ to 24 cents per pound, depending on cut, averages about 15 cents per pound (U. S. currency equivalent). The lowest priced fresh fish was about 9 cents per pound. Dry whole cod retails for about 50 cents per pound. A one-pound tall can of pink salmon sells for about \$1.00. A one-pound oval can of sardines (pilchards) retails for about 75 cents.

Imports are rigidly controlled in accordance with the availability of foreign exchange and the need for the product. Fishery products imports are obtained largely from soft-currency countries. Imported canned fish is considered a luxury product, but is readily available in all grocery stores. Consumer preference is for Spanish pack, in olive oil.

Imports of canned fishery products from the United States have been greater in the postwar period than in prewar, but have dropped off considerably since 1947. In 1947, imports of canned fishery products from the United States totaled \$81,000 in value. In 1949, imports from the United States were valued at \$11,000. U. S. products were principally canned pilchards, salmon, squid, and shrimp. Prices of these

^{1/} THIS IS THE THIRD REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. ALSO SEE FOOTNOTE ON P. 39 OF THIS ISSUE.

products were competitive with those of other countries but the exchange situation made it extremely difficult to obtain dollars for importing fishery products. Squid, according to reports, would have a greater acceptance in this market if it were cleaned prior to packing.

Postwar (1947-49) imports of preserved fish into Uruguay are about the same as prewar (1937-39). The principal items are dry whole cod from Norway, and sardines in olive oil from French North Africa. Together these two items account for about 60 percent of the total imports. Other items imported are salted anchovies from French North Africa, herring from the United Kingdom and the Netherlands, and tuna in oil from Spain, France, and Portugal.

There are no packaging or labeling restrictions or requirements on imported fishery products. The products, however, must undergo a rigid sanitary inspection to determine their fitness for human consumption.



Venezuela

FISH MARKETING SITUATION:^{1/} A relatively high dollar income, low taxes, and dependence on imported food products, makes Venezuela one of the more important South American outlets for processed fishery products. Almost every existing kind of processed fishery product is available in Venezuela, according to Robert O. Smith, U. S. Fish and Wildlife Service representative, who in June this year made a study of markets for U. S. fishery products in South America.



RETAIL MARKET IN CARACAS, VENEZUELA

Frozen foods are very sparingly distributed, being found chiefly in the petroleum areas, and in sections of cities, such as Caracas, where there is a considerable foreign population. There is definite prejudice against frozen fishery products for general consumption, and outside of the foreign colonies, they are sold only during periods when fresh fish are scarce.

The 1949 exports of fishery products from the United States to Venezuela totaled 2,166,300 pounds, valued at \$1,031,200. On the basis of quantity, the first four products were: (1) canned sardines; (2) canned salmon; (3) canned tuna; and (4) canned shrimp.

The problem of sanitary regulations for inspection and control of imported processed foods is a thorny one for all South American countries, and especially for

^{1/} THIS IS THE EIGHTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. SEE FOOTNOTE ON P. 39 OF THIS ISSUE.

Venezuela because of the quantities and diversified products brought in. Consideration is being given to requiring a certificate from the country of origin stating that the product complies with standards of quality for food products consumed within that country.

Canned sardines also occupy first place in the fishery products exported by Venezuela. Sardine canning is an important industry in the Cumana-Golfo de Cariaco area. There are nine canneries located along the Gulf of Cariaco from Cumana eastward. Although the principal product is sardines in vegetable oil, a few cases of frigate mackerel (caballa), Spanish mackerel (carite), and roe (mostly jurel or crevalle) are also packed.

Venezuela (population estimated at 4,397,918 in 1947) holds a unique position among South American countries in having no funded debt, no property taxes, unrestricted importation of products from hard-currency areas, plus the fact that the National Treasury receives an income from petroleum production amounting to between one and two million U. S. dollars per day.

However, since petroleum became the No. 1 industry, the food economy has become unbalanced by movement of labor from farm to industry, so that at present there is scarcely a food category in which the country is self-sufficient. The more important shortages are in basic commodities, such as, meats, flour, beans, rice, and edible oils.

CANNED FISH INDUSTRY POLICY: A Venezuelan interministerial committee, after a study of several months, recommended to the Cabinet a broad policy of protection for the canned fish industry, according to the May 17 issue of El Nacional as reported by the American Embassy at Caracas in its dispatches of May 19 and 22.

The subcommittee recommends among other things, an increase in customs duty on canned fish with quotas in certain cases; creation through the Banco Central of a "fish dollar" to aid exportation; collaboration of the Foreign Ministry to negotiate treaties bartering Venezuelan canned fish; establishment of a tin can factory; and economic aid to the industry. The Foreign Minister and the Minister of Development, who announced the report of the subcommittee, also informed the fish canners they were satisfied with the work of the subcommittee and because the problem is one affecting a national industry, it can be solved immediately in accordance with the policy of protectionism that has been followed by the country for some time.

The fish canners expressed satisfaction to the press and reported that because they were confident of a prompt favorable official solution, and due to certain recent exportations, the industry has recovered from the doldrums. However, the month



VENEZUELAN FISHING SCHOONERS DOCKED AT WILLEMSTED, CURACAO, DUTCH WEST INDIES. ABOUT 90 PERCENT OF CURACAO'S FISH LANDINGS ARE SUPPLIED BY VENEZUELAN BOATS. FISH ARE RETAILED DIRECTLY FROM THE BOATS.

of April was a poor one for the industry, and had not the announcement been made by the two ministers, the situation of the canners would have produced a grave crisis.

The recommendations of the interministerial committee are to be presented to the full Cabinet on May 19, 1950.

Included among the specific recommendations of the subcommittee was an increase in the duty on sardines and other canned fish to 2 bolivares per kilogram (approximately 27 cents per pound); stipulate protection for the national industry in international agreements to be renewed or revised; and open diplomatic negotiations with the United States to develop treatment for Venezuelan sardines equal to that granted by Venezuela to the sardines from the United States.

NOTE: CANNED SALMON, CANNED SARDINES IN OIL (EXCEPT OLIVE OIL), IN SAUCE OR IN THEIR OWN JUICE, AND CANNED SHELLFISH ARE INCLUDED IN SCHEDULE I OF THE UNITED STATES-VENEZUELAN TRADE AGREEMENT SIGNED ON NOVEMBER 6, 1939, IN FORCE SINCE DECEMBER 16, 1939, AND THE VENEZUELAN IMPORT DUTY ON SUCH UNITED STATES PRODUCTS CANNOT BE HIGHER THAN THOSE SPECIFIED IN THE TRADE AGREEMENT (EDITORS).

FISHING PORT TO BE BUILT AT CUMANÁ: The Venezuelan Development Corporation has announced in the Caracas press it has signed a contract with a Holland firm for a definitive study and plans for the construction of a fishing port at Cumaná, according to a June 27 American consular dispatch from Caracas. This is one of the three ports planned. The second, a fishing port for Isla Margarita, will be contracted for shortly. The third fishing port, for the central region (La Guaira), will be undertaken by the Ministry of Public Works with plans prepared in collaboration with the Venezuelan Development Corporation.

These project are part of the plan to increase the marine fish supply.



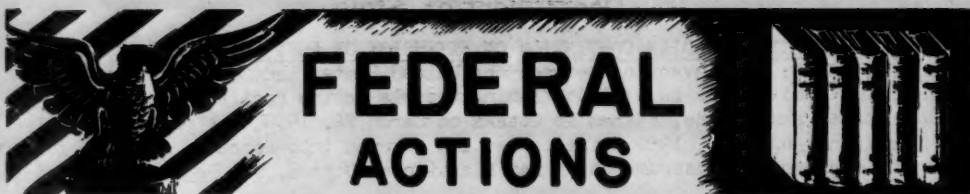
Yugoslavia

WORK OF FISHERIES RESEARCH INSTITUTE: The Yugoslavic Institute for Oceanography and Fishery at Split has done research which has given to the fishing industry "information for a more successful utilization of the riches of the Adriatic," according to the June 11 issue of Politika and as reported by the American Embassy at Belgrade in a June 20 dispatch.

Special attention was paid to research on sardines which are "much sought after in domestic and foreign markets," and in 1948, despite the belief that the movements of sardines could not be followed, marked sardines were traced as well as herring and bluefish.

Other research projects of the Institute included studies of sea temperatures, deep-sea vegetation, and fluorescent deep-sea fish.





FEDERAL ACTIONS

Food and Drug Administration

JUDICIAL REVIEW OF ORDERS REGARDING CANNED OYSTERS: A summary of the judicial review of the orders under Section 701 of the Federal Food, Drug, and Cosmetic Act (Willapoint Oysters, Inc., v. Oscar R. Ewing, Administrator, and J. Donald Kingsley, Acting Administrator, Federal Security Agency) was recently issued by the Food and Drug Administration (J.R. 701 /f/ N.J., F.D.C. 10). This case concerns the petition to circuit court of appeals for review of orders promulgating regulations fixing and establishing a definition and standard of identity and a standard of fill of container for canned oysters. Petition was granted in part and denied in part. Certiorari denied by Supreme Court.

On May 22 and September 12, 1948, Willapoint Oysters, Inc., filed in the United States Court of Appeals for the Ninth Circuit, petitions for judicial review of orders of the Administrator of the Federal Security Agency, dated, respectively, March 10, 1948, and August 3, 1948, establishing a definition and standard of identity and a standard of fill of container for canned oysters. The principal issues were whether the requirement of the standard that the No. 1 EO can shall contain at least 6½ ounces of oyster meat should apply to Western oysters, and whether Western oysters should be identified as "Pacific Oysters" on the can labels. The court dismissed the petition with respect to the standard of fill of container, but set aside the requirement of the standard of identity that the can be labeled as "Pacific Oysters."

The petitioner filed for rehearing or for certification of questions to the Supreme Court, which was denied on June 3, 1949. The petitioner then filed a motion for a stay of issuance of mandate, pending application to the Supreme Court for a writ of certiorari, which motion was allowed over the Government's objection, on July 18, 1949. A petition for a writ of certiorari was subsequently filed with the Supreme Court, and on October 24, 1949, the petition was denied.

On November 4, 1949, the circuit court of appeals issued a final decree, ordering that the portion of the standard of identity which specifies that Western canners label their product "Pacific Oysters" be set aside, and denying in all other respects the application of the petitioner.

The petitioner filed for rehearing of its petition for a writ of certiorari to the Supreme Court, which petition was denied on April 24, 1950.

NOTE: Copies of "Notice of Judgement," J. R. 701 (f) N.J., F. D. C. 10, are available from the Food and Drug Administration, Federal Security Agency, Washington 25, D. C.



Department of State

UNITED STATES-CANADIAN CONVENTION ON EXTENSION OF PORT PRIVILEGES TO HALIBUT FISHING VESSELS: A convention between the United States and Canada for the extension of port privileges to halibut fishing vessels on the Pacific Coasts of the United States and Canada, signed at Ottawa on March 24, 1950, was proclaimed by the President August 2, 1950. The convention entered into force on July 13, 1950, upon the exchange of instruments of ratification at Ottawa, the Department of State announced on August 4.

By this convention, fishermen of each country engaged in the halibut fishery of the North Pacific Ocean are granted privileges in the ports of entry of the other country to obtain supplies, repairs and equipment, and to land their catches of halibut and sablefish without the payment of duties, sell them locally on payment of the applicable customs duty, transship them in bond under customs supervision to any port of their own country, or sell them in bond for export.

United States fishing vessels have been accorded certain privileges in ports of British Columbia for over fifty years. For short periods in the past this Government has extended similar privileges, under wartime powers and by special legislation, to Canadian fishermen in Alaskan ports. Except for such periods, prior to the entry into force of this convention, Canadian fishing vessels could enter ports of the United States only when in distress or to secure supplies, repairs, or equipment.

Though the United States under this convention extends privileges to Canadian halibut fishermen in all West Coast ports, the exercise of the privileges will, for geographical reasons, be confined mainly to Alaskan ports and to Seattle, Washington.



Eighty-first Congress (Second Session)

JULY 1950

Listed below are public bills, resolutions, etc., introduced and referred to committees, or passed by the Eighty-First Congress (Second Session) and signed by the President during July 1950, which affect in any way the fisheries and allied industries. Public bills, resolutions, etc., are mentioned under this section only when introduced and, if passed, when they are signed by the President.

PUBLIC BILLS AND RESOLUTIONS INTRODUCED AND REFERRED TO COMMITTEES:

Senate:

S. 3888 (Johnson) - A bill to provide that the United States shall aid the States in fish and restoration and management projects, and for other purposes; to the Committee on Interstate and Foreign Commerce.

S. 3936 (Maybank) - A bill to establish a system of priorities and allocations for materials and facilities, authorize

the requisitioning thereof, provide financial assistance for expansion of productive capacity and supply, strengthen controls over credit, regulate speculation on commodity exchanges, and by these measures facilitate the production of goods and services necessary for the national security, and for other purposes; to the Committee on Banking and Currency.

House of Representatives:

H. R. 9074 (Miller) - A bill to amend chapter 61 (relating to lotteries) of title 18, United States Code, to make clear

that such chapter does not apply to nonprofit contests wherein prizes are awarded for the species, size, weight, or quality of fish caught by the contestant; to the Committee on the Judiciary.

H. R. 9113 (Weichel) - A bill to prevent the shipment in interstate commerce of undersized fish; to the Committee on Merchant Marine and Fisheries.

H. R. 9134 (Nicholson) - A bill to amend title 46, United States Code, section 251; to the Committee on Merchant Marine and Fisheries. (After the word "fisheries" will add: "Except as otherwise provided by treaty or convention to which the United States is a party, no foreign-flag vessel shall, whether documented as a cargo vessel or otherwise, land in a port of the United States its catch of fish or fish products, or any fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish or fish products.")

H. R. 9141 (Cooley) - A bill to encourage the improvement and development of marketing facilities for handling perishable agricultural commodities; to the Committee on Agriculture.

H. R. 9176 (Spence) - Same as S. 3936; to the Committee on Banking and currency.

H. R. 9276 (Marcantonio) - A bill to prevent further price increases and to reduce present prices to price levels consistent with a stable economy and the welfare of the American people; to the Committee on Banking and Currency.

H. J. Res. 503 (Klein) - Joint resolution to restore to the President all powers of the Price Control Act of 1942, including those of rationing or allocation; to the Committee on Banking and Currency.

H. J. Res. 515 (Javits) - Joint resolution to provide for the appointment by the President of a Mobilization Production Board and a Food Conservation Agency; to the Committee on Armed Services.

H. Res. 715, providing for the consideration of and 2 hours debate on H. R. 5967, to clarify the status of freight forwarders and their relationship with motor common carriers (H. Rept. 2598).

SIGNED BY THE PRESIDENT:

Public Law 614 (S. 2658) - An act to establish rearing ponds and a fish hatchery in the State of Kentucky. Signed July 18, 1950.

Public Law 590 (S. 3550) - An act extending import-control authority over fats and oils and rice and rice products for a 1-year period from June 30, 1950. Signed June 30, 1950.

CONGRESSIONAL REPORTS:

Committee reports (of interest to the fisheries and allied industries) on bills reported in this section (available only from the committee submitting the report):

Senate:

Committee on Interstate and Foreign Commerce

Report No. 2168 (July 26, 1950), 2 p., printed, to accompany H. R. 7209, authorizing and directing the Secretary of the Interior to undertake continuing studies of Atlantic Coast fish species for the purpose of developing and protecting fish resources. Bill reported favorably without amendment by the Committee and passage recommended. (This bill as passed by the House is a combination of three bills introduced in the House: H. R. 7209, H. R. 6973, and H. R. 986. In its conclusion, the Senate Committee stated: "Your committee believes that the study authorized herein is highly important if our coastal area is to continue to be important as a fishing ground for either sportsmen or commercial fishermen. However, your commit-

tee feels that the studies contemplated under the authority of this bill should be carried on by specific annual appropriations in accordance with the recommendations of the Bureau of the Budget.")

Report No. 2169 (July 26, 1950), 5 p., printed, to accompany H. R. 7887, granting the consent and approval of Congress to an amendment to the Atlantic States Marine Fisheries Compact, and repealing the limitation on the life of such compact. Bill reported favorably without amendment by the Committee and passage recommended as previously amended. (This bill, which passed the House, amends the Atlantic States Marine Fisheries Compact (Public Law 539, 77th Cong.) to permit any two or more States ratifying the amendment to the compact to designate the Atlantic States Marine Fisheries Commission as a joint regulatory agency with such powers as they may jointly confer for the regulation of the fishing operations

of the citizens and vessels of such designating States with respect to specific fisheries in which such States have a common interest. Bill also eliminates the provision restricting the life of the Commission to 15 years, thus establishing it as a permanent organization, as are the Pacific Coast and Gulf States com-acts.)

House of Representatives:

Committee on the Judiciary

Report No. 2536 (July 12, 1950), 3 p., printed, to accompany H. R. 9074, amending chapter 61 (relating to lotteries of title 18, United States Code) to make clear that such chapter does not apply to nonprofit contests wherein prizes are awarded for the species, size, weight, or quality of fish caught by the contestant. Bill reported favorably without amendment by Committee and passage recommended. (In approving the original measure, the committee saw fit to incorporate a qualification limiting the application of the exemption to fishing contests not conducted for profit.)

Committee on Foreign Affairs

Report No. 2757 (Implementation of the Tuna Conventions), July 27, 1950, 15 p., printed, to accompany H. R. 8945, a bill

to give effect to the Convention for the Establishment of an International Commission for the Scientific Investigation of Tuna, signed at Mexico City January 25, 1949, by the United States of America and the United Mexican States, and the Convention for the Establishment of an Inter-American Tropical Tuna Commission, signed at Washington May 31, 1949, by the United States of America and the Republic of Costa Rica, and for other purposes. Bill reported favorably with amendment by the Committee and passage recommended. (The report discusses the purpose of the legislation; the tuna industry; United States fisheries policy; the tuna conventions, including the purpose and differences in the two conventions, the provisions and costs of the bill; and contains an appendix which gives the texts of the two conventions. In its conclusions, the Committee reported that "If the tuna fishery is to have a stable economic basis, scientific investigation will be required. The United States cannot undertake action unilaterally, for the tuna industry is an international one. The fishery area and the bait supply lie off foreign shores. International action is required. International agreements to proceed with the investigative work have been ratified by the United States. This legislation provides the means for putting these agreements into effect. No new policy is involved, for the United States has taken substantially similar action in other fisheries.")

CONGRESSIONAL HEARINGS:

Printed Congressional hearings of interest to the fisheries and allied industries (available only from the committee holding the hearing):

Senate:

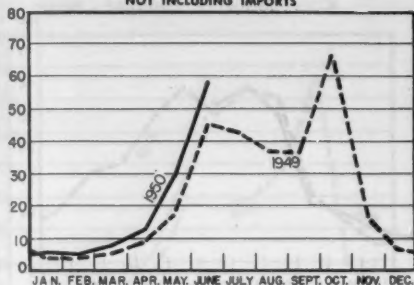
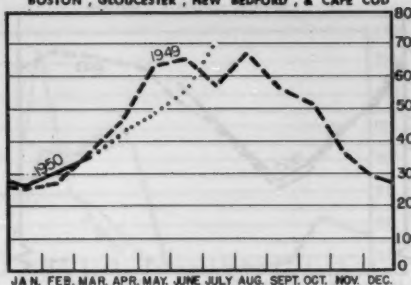
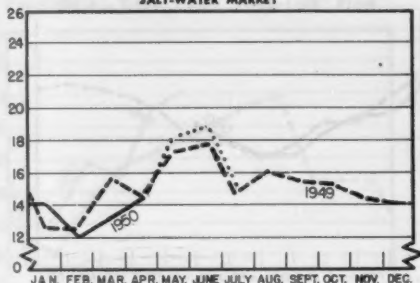
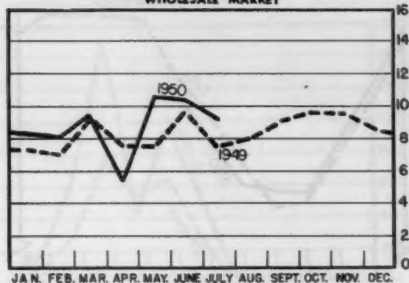
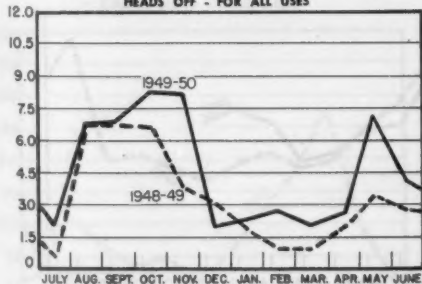
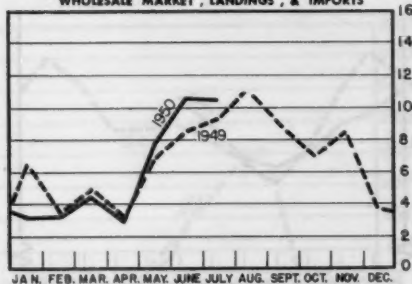
Small Business and Procurement, Economic Cooperation Administration (Hearing on June 21, 1950, before the Senate Select Committee on Small Business on participation of small business in Government procurement), 47 p., printed. Contains statements by Paul G. Hoffman and others as to what is being done by ECA to help small business to participate in ECA programs, and several reports submitted by ECA on this subject.

Northwest Atlantic Fisheries Convention

(Hearings on April 4-5, 1950, before a Subcommittee of the Senate Committee on Interstate and Foreign Commerce on S. 2801, "A bill to give effect to the International Convention for the Northwest Atlantic Fisheries, signed at Washington under date of February 8, 1949, and for other purposes," 120 p., printed. Contains statements and reports presented at the hearings on S. 2801.

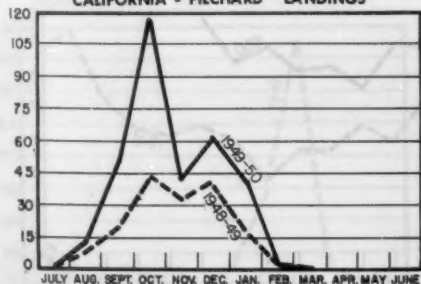
LANDINGS AND RECEIPTS

In Millions of Pounds

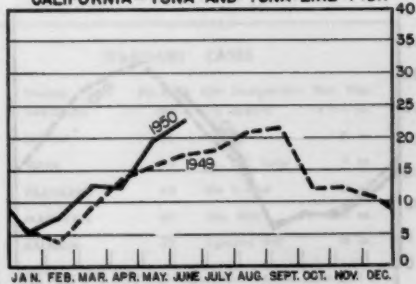
MAINE - LANDINGS
NOT INCLUDING IMPORTSMASSACHUSETTS - LANDINGS
BOSTON, GLOUCESTER, NEW BEDFORD, & CAPE CODNEW YORK CITY - RECEIPTS OF FRESH & FROZEN FISH
SALT-WATER MARKETCHICAGO - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKETGULF - SHRIMP LANDINGS
HEADS OFF - FOR ALL USESSEATTLE - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKET, LANDINGS, & IMPORTS

In Thousands of Tons

CALIFORNIA - PILCHARD LANDINGS



CALIFORNIA - TUNA AND TUNA-LIKE FISH

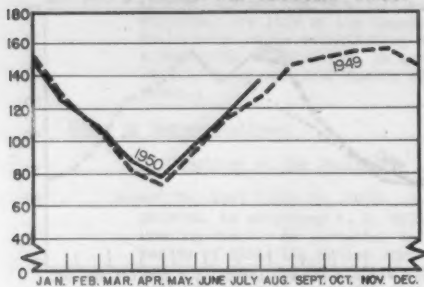


..... ESTIMATED

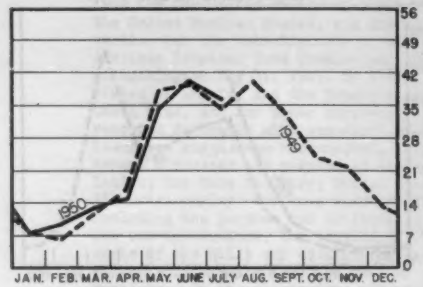
COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

In Millions of Pounds

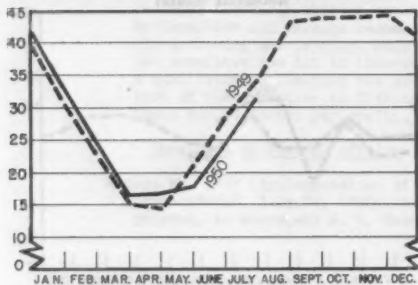
U.S. & ALASKA - HOLDINGS OF FROZEN FISH



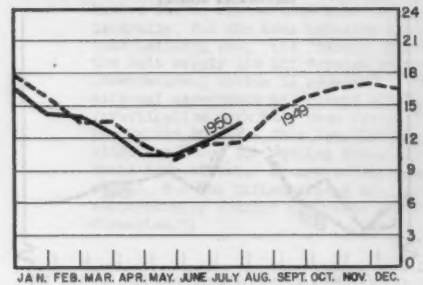
U.S. & ALASKA - FREEZINGS



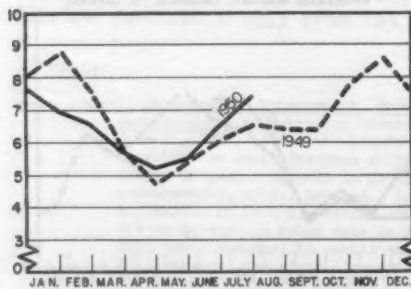
NEW ENGLAND - HOLDINGS OF FROZEN FISH



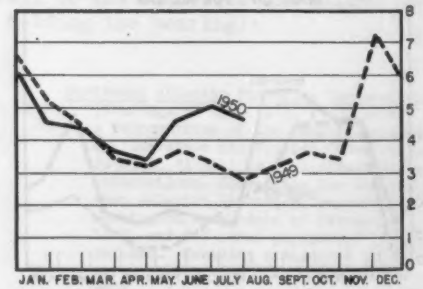
NEW YORK CITY - HOLDINGS OF FROZEN FISH



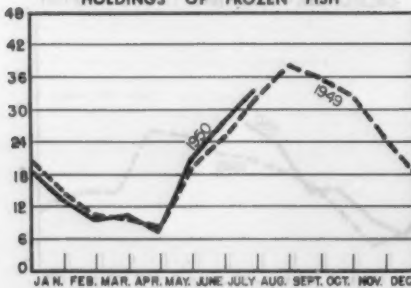
CHICAGO - HOLDINGS OF FROZEN FISH



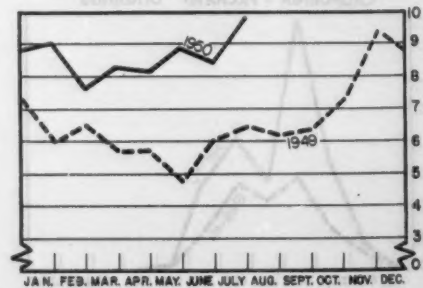
GULF - HOLDINGS OF FROZEN FISH



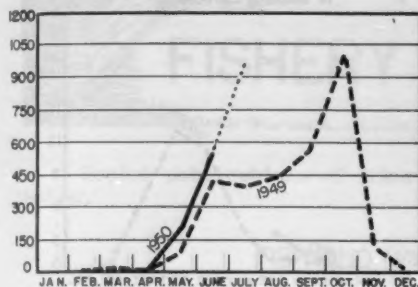
WASHINGTON, OREGON, AND ALASKA - HOLDINGS OF FROZEN FISH



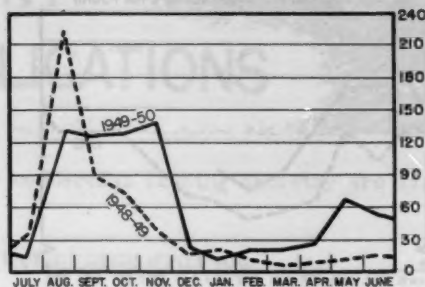
CALIFORNIA - HOLDINGS OF FROZEN FISH



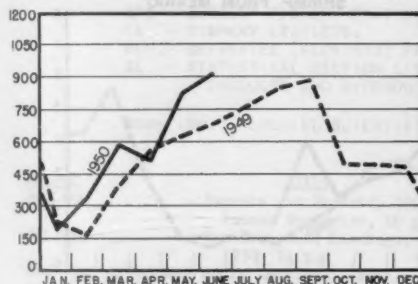
CANNED FISHERY PRODUCTS

In Thousands of Standard Cases
MAINE - SARDINES, ESTIMATED PACK

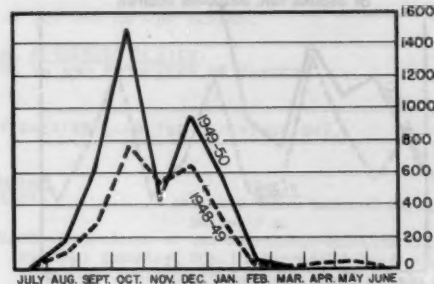
UNITED STATES - SHRIMP



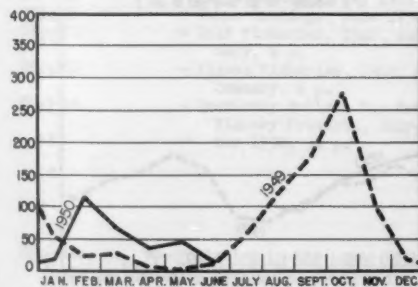
CALIFORNIA - TUNA AND TUNA-LIKE FISH



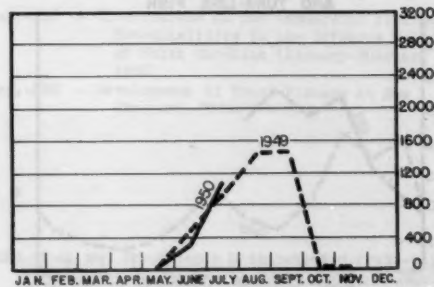
CALIFORNIA - PILCHARDS



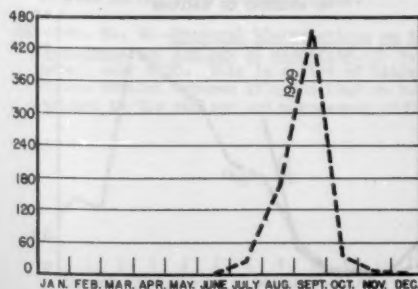
CALIFORNIA - MACKEREL



ALASKA - SALMON



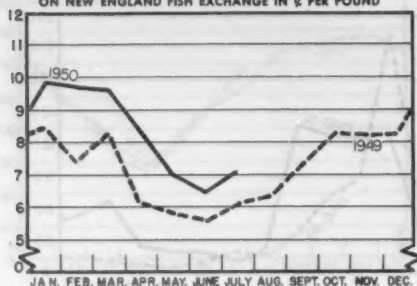
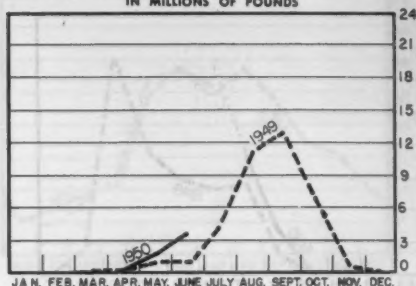
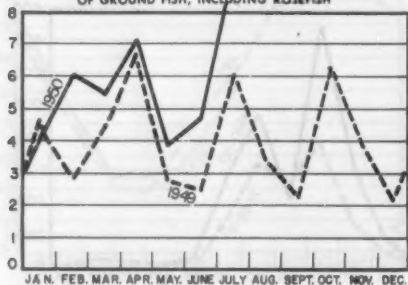
WASHINGTON - PUGET SOUND SALMON



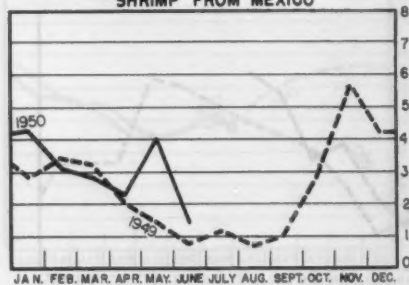
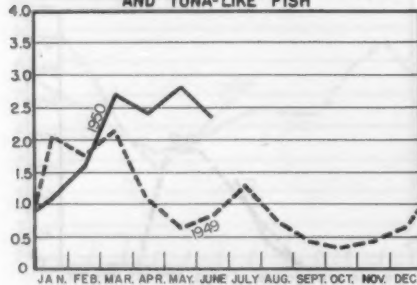
STANDARD CASES

Variety	No. Cans	Can Designation	Net. Wgt.
SARDINES	100	1/4 drawn	3 1/4 oz.
SHRIMP	48	—	5 oz.
TUNA	48	No. 1/2 tuna	7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
MACKEREL	48	No. 300	15 oz.
SALMON	48	1-pound tall	16 oz.

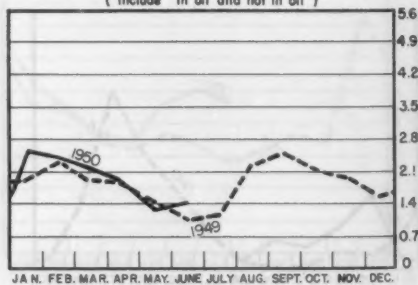
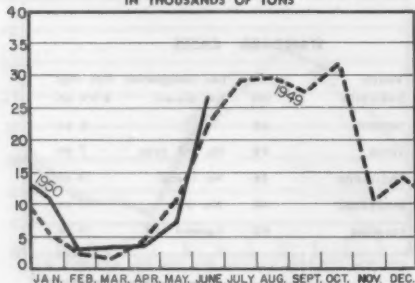
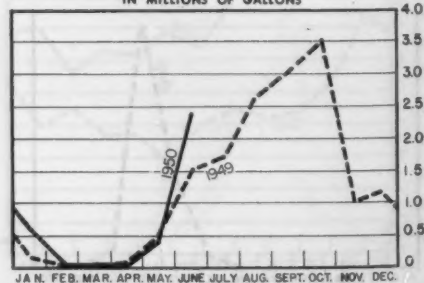
PRICES, IMPORTS and BY-PRODUCTS

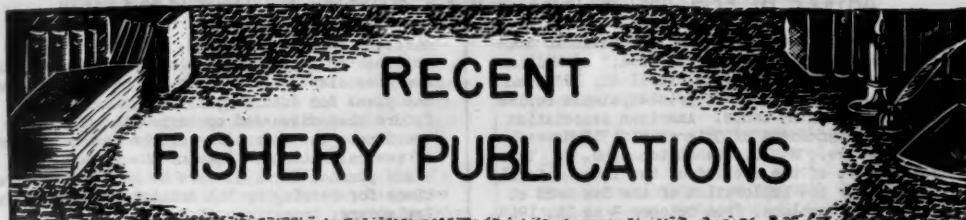
BOSTON - WEIGHTED AVERAGE PRICE
ON NEW ENGLAND FISH EXCHANGE IN ¢ PER POUNDMAINE - IMPORTS OF FRESH SEA HERRING
IN MILLIONS OF POUNDSU.S. - IMPORTS OF FRESH & FROZEN FILLETS
OF GROUND FISH, INCLUDING ROSEFISH

In Millions of Pounds

U.S. - IMPORTS OF FRESH AND FROZEN
SHRIMP FROM MEXICOU.S. - IMPORTS OF CANNED TUNA
AND TUNA-LIKE FISH

In Millions of Pounds

U.S. - IMPORTS OF CANNED SARDINES
(Include in oil and not in oil)U.S. & ALASKA - PRODUCTION OF FISH MEAL
IN THOUSANDS OF TONSU.S. & ALASKA - PRODUCTION OF FISH OIL
IN MILLIONS OF GALLONS



RECENT FISHERY PUBLICATIONS

Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

- CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
 FL - FISHERY LEAFLETS.
 SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
 SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.

SSR-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title	Number	Title
CFS-551	- Imports and Exports, 1945-1949 Annual Summaries, 10 p.	FL-373	- Atlantic Coast Mackerel Purse Seine, 9 p.
CFS-553	- Massachusetts Landings, February 1950, 14 p.	FL-380	- Byproducts of the Government-Operated Alaska Fur-Seal Industry, 5 p. Describes the various byproducts obtained from the Alaska fur seal; annual production of meal and oil from 1935 through 1949; and analyses of the fur-seal meal and oil.
CFS-554	- Maine Landings, April 1950, 4 p.	SL-104 (Revised)	- Firms Canning Mackerel, 1949, 2 p.
CFS-555	- Fish Meal and Oil, May 1950, 2 p.	Sep.-255	- Observations on the Commercial Fishing Potentialities in the Offshore Waters of North Carolina (January-February 1950).
CFS-556	- Texas Landings, May 1950, 4 p.	Sep.-256	- Development of Trash Fishery at New Bedford, Massachusetts.
CFS-557	- Frozen Fish Report, July 1950, 10 p.		
CFS-559	- Maine Landings, May 1950, 4 p.		
CFS-561	- Texas Landings, June 1950, 4 p.		
CFS-563	- Gulf Fisheries, 1948, Annual Summary, 4 p.		
CFS-565	- Alaska Fisheries, 1948, Annual Summary, 6 p.		
FL-336	- Quarterly Outlook For Marketing Fishery Products, July-September 1950, 54 p.		

* * * * *

SSR-Fish. No. 30--Pollution in the Lower Columbia Basin in 1948 with Particular Reference to the Willamette Basin, by Frederic F. Fish and Robert R. Rucker, 22 p., processed, June 1950. Describes and discusses the pollution surveys made in 1948 in the lower Columbia Basin.

SSR-Fish. No. 31--Doctoral Dissertations on the Management and Ecology of Fisheries, 35 p., processed, July 1950. This is a list of titles of theses written between 1934 and 1949 on subjects related to the ecology and management of fisheries.

SSR-Fish. No. 32--Vitamin A in Selected, Pale-Colored Livers of Alaska Fur Seals, 1948, by Victor B. Scheffer, Nava L. Karriek, and R. Bruce Sanford, 8 p., illus., July 1950. Reports on the results of the analyses of 51 pale-colored Alaska fur-seal livers in 1948. Results indicate that paleness of liver is directly correlated with high vitamin-A potency and with high oil content, but it is not apparently associated with size of the seal or other readily observable characteristics.

ARTICLE BY FISH AND WILDLIFE SERVICE AUTHOR IN OTHER PUBLICATION

"The 37th Annual Meeting of the International Council for the Exploration of the Sea," by William F. Royce, article, Science, April 21, 1950, vol. 111, no. 2886, pp. 447-9, printed, single copies of publication 25 cents. American Association for the Advancement of Science at 1515 Massachusetts Ave., N. W., Washington 5, D. C. This is a report of the meeting of the International Council for the Exploration of the Sea held at Edinburgh, Scotland, from October 3 to 11, 1949. This organization is concerned with the field of fisheries and the interrelated studies of the ocean. A short discussion is given of the sig-

nificant reports presented. The author points out that an important result of the meeting was the free discussion of both the current work and the plans for future work. One phase of the future plan discussed concerned the efforts to coordinate the operations of the research ships of several nations. Some of the vessel operations planned for 1950 were to be joint explorations for herring by the British, Norwegians, and Icelanders; comparison of French and British trawling gear in order to standardize statistical units of fishing effort; and studies of plaice by the Dutch and British.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

Advance Report on the Fisheries of Prince Edward Island, 1948, 12-1021, 8 p. (mostly statistical tables), processed, 10 cents. Fisheries Section, Industry and Merchandising Division, Dominion Bureau of Statistics, Ottawa, Canada, 1950. Reports on the fisheries of Prince Edward Island and gives the 1948 production of fish and shellfish, the landed and marketed values, capital equipment of the fisheries, the employees in the fisheries, and the lobster pack for 1928-48.

Care in the Handling of Crayfish, by Keith Sheard, Fisheries Bulletin No. 3, 11 p., printed. Western Australia Fisheries Department, Perth, Australia, 1950. Emphasizes the need for care in the handling of crayfish from the pots to the catching boats, storage in submerged crates, care during sea transport in refrigerated and nonrefrigerated boats, land transportation and storage before factory processing, and other pointers in order to reduce the losses due to poor handling and storage.

Colonial Development Corporation Annual Report and State of Accounts (for the year ended 31st December 1949), 69 p., with maps, printed, 2s. (approx. 28 U. S. cents). His Majesty's Stationery Office, London, England, 1950. Reports on the projects (including those on fisheries) which have been investigated or approved by the Colonial Development Corporation during 1949. Included are the number of British colonial fisheries projects which have been investigated during the year and those which have been accepted by the Corporation. The accepted projects are listed individually and described.

Foreign Commerce Yearbook, 1948, 593 p., printed, \$2.00. Office of International Trade, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, Washington, D. C.) Contains compilations of foreign trade statistics and related economic and financial data for 68 countries, including condensed fisheries production data for some of the countries.

The information represents highly condensed official data published by the respective countries, supplemented by publications of international agencies, and by information supplied by the U. S. Foreign Service and other U. S. Government departments. An appendix provides world area and population data and U. S. equivalents of foreign weights and measures. Statistics in most cases are for the years 1946 and 1947, and for the two prewar years 1937 and 1938.

Herring Industry Board Fifteenth Annual Report (for the year ended 31st March 1950), Cmd. 7975, 39 p., printed. His Majesty's Stationery Office, London, England, 1s. (approx. 14 cents). Contains a review of Great Britain's herring fisheries to April 1, 1950, the marketing of herring, research and development in the herring industries, and the Government's grants and loans to the industry. In addition, the report contains statistical tables giving the landings and values of herring catches and utilization for 1948, 1949, and 1950 seasons; and total landings and utilization for the calendar years 1948 and 1949.

"Income of Gaspe Fisherman Studied," article, Trade News, May 1950, vol. 2, no. 11, pp. 17-22, illus., processed. Department of Fisheries, Ottawa, Canada. Reports on an investigation conducted by the Canadian Fisheries Prices Support Board as to the income of fishermen in the Gaspe Peninsula. It gives an idea of the economic problems involving the fisheries and fishermen in this maritime area of Quebec. The conclusion states that even under the best of conditions, with the present type of equipment, catches and individual incomes remain low and compare unfavorably with those of fishermen playing their trade in a more modern way. Lack of mechanization and of modernization in the catching techniques is indicated as the reason.

Japanese Fur Sealing, by Oliver L. Austin Jr. and Ford Wilke, Report Number 129, 91 p., illus., processed. Natural Resources Section, Supreme Commander for the Allied Powers, Tokyo, July 1950. (Reports may be purchased in photostat or microfilm from the Office of Technical Services, U. S. Department of

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

Commerce, Washington 25, D. C.) This report assembles the available data on the distribution, abundance, and ecology of the fur seal in Japanese waters, with special reference to the species' importance to the Japanese economy. It is based on investigations conducted in the field in 1948-49 by the staff of the Wildlife Branch, Fisheries Division, Natural Resources Section of SCAP, on unpublished records and statistics from the formerly secret files of the former Japanese Bureau of Fisheries, and on a thorough review of the available Japanese literature on the subject. Included are data on Japanese sealing from 1890 to 1945, the fur-seal problem in postsurrender Japan, modern Japanese pelagic sealing procedures, and a bibliography.

The Menhaden Fishery, by D. W. Miles and E. G. Simmons, Bulletin No. 30, Marine Laboratory Series No. II, 28 p., printed, illus. Texas Game, Fish and Oyster Commission, Austin, Tex. This booklet is a condensation of the information available on the menhaden industry as a whole and the Texas menhaden industry in particular. Included is a description of the menhaden; history of the fishery; uses of menhaden as food, oil, and meal; economic importance of the menhaden; nets, vessels, and fishing methods; effects of menhaden operations on other fisheries; effect of menhaden fishing on the spawning grounds of fish and shrimp, upon the adults of commercial and sporting fish and shrimp, and on the food of game and commercial fish; and an analysis of data collected on the contents of fish stomachs collected at various ports in Texas. In the conclusions, the authors point out that purse seines do little harm to food and game fish populations. In all five investigations dealt with in this paper, shrimp were found to be the preferred diet of the three favorite food and game fish (speckled trout, redfish, and Spanish mack-

erel). Although these fish do eat menhaden in small quantities, according to the authors, they seem to prefer shrimp.

Trade with France—A Businessman's Guide and Directory, 68 p., printed. Prepared by Economic Cooperation Administration Special Mission to France, Available from Economic Cooperation Administration, Washington, D. C. or any of the field offices of the Department of Commerce. This booklet should be valuable to American suppliers now engaged in or contemplating trade with France, especially small companies. In addition to a list of trade associations and "groupements" (associations of importers) in metropolitan France and in the territories, the booklet contains suggestions for reaching the French businessman, import regulations, purchasing methods, French ECA import procedure, trade practice requirements under ECA, suggestions for preparing shipments for France, general current economic information about France, and data on ECA-financed French purchases.

Tuna Survey of North Australia, by D. L. Serventy, article, Fisheries Newsletter, April 1950, vol. 9, no. 3, pp. 18-20, illus., printed. Commonwealth Director of Fisheries, Dept. of Commerce and Agriculture, Sydney, Australia. A report of the tuna survey of the northern areas off Australia during the winter months of 1949 by two of the vessels of the Fisheries Division of the C.S.I.R.O. The area jointly covered by both vessels was a quadrant in the northern part of the Gulf of Carpentaria, the entire coastline from Cape Wessel in Arnhem Land to Northwest Cape, the southern parts of the Timor Sea, including the greater part of the continental shelf. By trolling the vessels caught five species of tuna, and in order of abundance, they were: northern bluefin (Kishinoella tonggol), mackerel tuna (Euthynnus alletteratus), striped tuna (Katsuwonus pelamis), dogtooth tuna (Gymnosarda nuda), and yellowfin tuna (Neothunnus macropterus).



EXPLORATORY FISHING EXPEDITION TO THE NORTHERN BERING SEA IN JUNE AND JULY, 1949

Abstracts of some of the most important background and historical information concerning fishery and oceanographic investigations previously undertaken in the Bering Sea and a discussion of the 1949 exploration and results in the northeastern Bering Sea are found in Fishery Leaflet 369, Exploratory Fishing Expedition to the Northern Bering Sea in June and July, 1949. Free copies can be obtained by writing directly to the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D.C. This 56-page illustrated leaflet mainly presents the results obtained from the 51 otter trawl drags made in northeastern Bering Sea from June 22 to July 5, 1949.

Numerous reports from local residents and natives of St. Lawrence Island and the area around Nome have indicated that several species of fish and shellfish, including cod, shrimp, and king crabs, may exist in the northern Bering Sea in commercial quantities.



A CATCH OF FLATFISH FROM THE NUNIVAK ISLAND AREA.

were caught, mainly in the waters around St. Lawrence Island and the approaches to Norton Sound. Numerous immature flounders were taken in Norton Sound and in the approaches to the Sound, which was considered evidence of the existence of a population of adult fish in the general area.

The waters to the west and south of Nunivak Island produced the best cod and flatfish catches, many drags containing several pounds of marketable fish, including prime lemon, yellowfin, rock, and flathead "soles."

The plan of the operation was to take a general sample of the bottom fish life of the region, no attempt being made to concentrate on any one species. The results of this general survey should furnish a foundation for more intensive work in the future within certain specific localities which could be worked thoroughly for an entire season with various types of gear.

The expedition found that king crabs were widely scattered and of a much smaller size than those found to the south. Both the Alaskan and purple species were taken, and although no great quantities were found, it is possible that a more thorough survey might reveal areas of concentration. Five species of shrimp

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TUNA FISH SALAD



2 CUPS FLAKED TUNA FISH	2 TABLESPOONS SWEET PICKLE, CHOPPED
1/2 CUP MAYONNAISE OR SALAD DRESSING	2 TABLESPOONS ONION, CHOPPED
1/2 CUP CELERY, DICED	3 HARD COOKED EGGS, DICED
1/2 CUP PEAS	LETTUCE

COMBINE FIRST 7 INGREDIENTS, BEING CAREFUL NOT TO BREAK THE FISH INTO TOO SMALL PIECES. SERVE ON LETTUCE CUPS, AND GARNISH WITH SLICED EGGS. SERVES 6.

A Fish and Wildlife Service tested recipe. This is one in the series of recipes using fishery products tested and developed in the Service's test kitchens.

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Photograph credits: Cover and pp. 30, 31, 32, 33, 34, 37, and 38 - Robert W. Tyson; p. 17 - Wm. F. Royce; p. 19 - U. S. Navy; p. 23 - O. L. Wallis; p. 49 - U. S. Army Signal Corps; pp. 62-3 - R. O. Smith. Other photographs in this issue anonymous.

EGYPTIAN FISHERIES

Fishery Leaflet 363, Egyptian Fisheries, is a discussion of Egypt's fisheries and the Government's plans for the reorganization and expansion of the fishing industry.

Production data given includes marine fishing, lake fishing, and inland fishing. This 12-page bulletin also contains information on fisheries distribution, canning, consumption, imports, exports, and regulations. The administration of the Egyptian fisheries is explained and what the various Government institutions are doing in the fields of research, conservation, and development of hatcheries.

A list of common fish in Egyptian waters (giving the Arabic and scientific names) is also in this publication.

This publication does not attempt to cover in detail the Red Sea fisheries. However, more detailed information on the Red Sea fisheries is contained in Fishery Leaflet 310, Production of Edible Fish in the Red Sea.

Copies of Fishery Leaflets 363 and 310 may be obtained free upon request from the U. S. Fish and Wildlife Service, Washington 25, D.C.

